The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 120, No. 10 — CHICAGO, ILLINOIS — NOVEMBER 7, 1942

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THE PREVENTION OF TOXEMIA OF PREGNANCY

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It is well known that both the incidence and the maternal mortality of eclampsia in the United States are declining. During the past decade the incidence of the disease at the Johns Hopkins Hospital, as shown in the accompanying table, has been about one fourth of that observed during the first two decades of the century and less than half that seen during the twenties. At the same time a gratifying decrease in the maternal mortality of eclampsia has occurred, the death rate having fallen from over 20 per cent in the early years of the century to 5 per cent during the past decade.

Not only has the incidence of eclampsia in the general clinic population decreased, but today the disease accounts for a much smaller percentage of our total number of cases of toxemia than it did even fifteen years ago. As may be seen in chart 1, cases of eclampsia constituted 11.8 per cent of all toxemia admissions in 1927 but only 2.1 per cent in 1940 and 1.3 per cent in 1941. Meanwhile, however, the incidence of toxemias of pregnancy in general among the clinic population has increased; indeed, if all types of toxemia are grouped together under the designation total toxemias, it may be seen in chart 1 that this group represented only 9.6 of all obstetric admissions in 1927, but during recent years it has constituted between 16 and 20 per cent of all admissions. While several factors may be responsible for this increase in total toxemias, two conclusions would seem inescapable from the data presented: (1) Something has happened which has reduced dramatically the incidence of eclampsia, and (2) in current practice in an overwhelming majority of cases of toxemia of pregnancy the condition is not eclampsia but a nonconvulsive type of toxemia.

Concerning the dramatic reduction in the incidence of eclampsia, it should be noted that this circumstance is not peculiar to our clinic but holds true, as we have learned from conversations with obstetricians the country over, in the same degree wherever good antepartum care is available. Contrariwise, in certain regions of the country where such care is not available the incidence of eclampsia, we have reason to believe, has remained much the same. Further extension of antepartum care promises therefore a still further diminution in the incidence of the disease.

From the Department of Obstetrics, Johns Hopkins University and Hospital.
Read before the American Congress of Obstetrics and Gynecology, St. Louis, April 8, 1942.

If it is true that this salutary reduction in the incidence of eclampsia is the result of good antepartum care, it would seem appropriate to ask what specific measures have been responsible for this effect. Stated briefly, the primary factor responsible for this decrease in the incidence of eclampsia has been the early detection and appropriate treatment of the prodromal stage of the disease, namely preeclampsia. In order to achieve this end, vigorous adherence to the following program is obligatory:

1. Expectant mothers must visit their physician or an antepartum clinic not later than the second missed menstrual period and make visits thereafter as follows: during the first five months every four weeks, during the sixth, seventh and eighth months every two or three weeks, and during the last month every week.

2. Since the earliest warning signal of impending eclampsia is usually suddenly developing hypertension, the importance of frequent and regular blood pressure readings during pregnancy cannot be emphasized too often. The absolute blood pressure reading is probably of less significance than the relationship it bears to previous estimations and to the age of the patient. For example, a rise from 110/70 to 135/85 in a young woman is a more urgent danger signal than a rise from 135/85 to 150/90 in a patient of 35. We have seen a number of girls of 15 and 16 with eclampsia whose blood pressure never exceeded 135 systolic and 90 diastolic, but the normal, basal pressure of these young women was in the neighborhood of 105/65. Similarly, in China, where the blood pressure of every one averages 10 or 15 points lower than in this country, eclampsia with readings of 130 systolic and 85 diastolic is not uncommon.

3. The next most constant sign of preeclampsia is sudden, excessive gain in weight. Sudden gains of more than 2 pounds (0.9 Kg.) a week should be viewed with suspicion and gains of more than 3 pounds (1.4 Kg.) with alarm. Weight increases of the latter magnitude call for more frequent blood pressure examinations than previously recommended, and if these readings are also abnormal, hospitalization with intensive treatment is often indicated. If cases of preeclampsia are studied from the point of view of fluid intake and output, it is at once apparent that these sudden gains in weight are due entirely to an accumulation of water in the tissues. Such weight gains, in other words, represent latent edema and almost always precede the visible face and finger edema which is so characteristic of the advanced stages of the disease. From what has been said, it is obvious that a pair of scales is essential equipment for good antepartum care.

4. The sudden appearance of albumin in the urine with or without other findings or symptoms should always be regarded as a sign of impending eclampsia.

Usually it develops later than the hypertension and gain in weight and for this very reason must be regarded as a serious omen when superimposed on these other two findings.

5. But the very essence of eclampsia is the lightning-like fulminance with which it often strikes. Although the aforementioned physical signs of preeclampsia usually give the physician ample time to institute preventive treatment, it sometimes happens that these alterations develop between visits to the office or clinic, even though they are only a week apart. For this reason it is imperative that all expectant mothers be informed both verbally and by some form of printed slip or booklet in regard to certain danger signals which they themselves may recognize. As far as the toxemias of pregnancy are concerned, the following demand immediate report to the doctor: (1) severe, continuous headache, (2) swelling of the face or fingers, (3) dimness or blurring of vision, (4) persistent vomiting, (5) decrease in the amount of urine excreted and (6) epigastric pain (a late symptom).

Eclampsia: Incidence and Maternal Mortality at Johns Hopkins Hospital 1896-1941 (478 Cases in 44,722 Admissions)

Period	Admissions	Cases	Incidence, per Cent	Deaths	Mortality, per Cent
1896-1905	2,442	52	2.1	12	23.0
1906-1915	5,183	93	1.8	19	20.4
1916-1922	4,595	107	2.3	17	15.9
1923-1930	11,720	127	1.1	13	10.2
1931-1941	20,050	99	0.5	5	5.0

In the face of the warnings of developing toxemia, as mentioned, the physician's first duty is to make arrangements for frequent blood pressure readings at least once a week and in unusually alarming cases two or three times a week. During this period of preliminary observation the following routine is recommended: 1. A salt poor diet; that is, one in which no salt is added either in the kitchen or at the table. 2. Restricted activities, complete rest in bed being desirable in most cases. 3. Saline catharsis at the outset of the treatment and repeated twice weekly. 4. Maintenance of fluid intake at about 3,000 cc. daily, that is, eight to ten glasses of water. 5. Sedation such as is given by phenobarbital, the dosage being dependent on the severity of the condition; if convulsions are actually imminent, heavy sedation with paraldehyde may be desirable. 6. With regard to the protein content of the diet, this is a debated subject, but in our opinion the balance of evidence lies in favor of those who permit a full diet of meat provided the meat is not salty.

If a satisfactory response to treatment is obtained either in the home or in the hospital, the pregnancy may be allowed to proceed to term, but with the patient under careful observation at frequent intervals. Temporary improvement is often followed by sudden acute aggravations.

Often, however, no amount of therapy serves to check the onward progress of the hypertension and accompanying signs. In such a situation the realization of two facts becomes of utmost importance: 1. Such patients are very likely to develop eclampsia with its accompanying risk to mother and child. 2. Permanent damage to the vascular system with permanent hypertension is likely to be a late result if the process is allowed to continue indefinitely even though eclampsia is avoided. Many recent studies indicate that the duration of the toxemia is more important in this respect than any other factor.

Termination of the pregnancy, therefore, becomes the treatment of choice under such circumstances. Two means of ending pregnancy are available: on the one hand, induction of labor followed by vaginal delivery and, on the other, cesarean section. The decision as to which of these two courses is preferable may be a very difficult one to make and depends on a number of factors: the duration of the pregnancy, the condition of the cervix, the parity of the patient and the level of the fetal head in the pelvis. Time does not permit any detailed consideration of this phase of our subject, but several brief considerations can be given: 1. In a patient near term, with the cervix at least 1 to 2 cm. dilated, soft and thin and the head well in the pelvis, artificial rupture of the membranes will almost always bring about prompt labor and delivery. 2. In a patient three or more weeks from term and the cervix long, closed and firm, particularly in the primigravida, elective cesarean section offers the mother and child the better chance. 3. In the large group falling between these two extremes, all factors must be carefully weighed. The severity and suddenness of appearance of the toxemia, the probability of eclampsia, the condition of the cervix and the probable time interval before delivery can be effected from below must all be taken into consideration in making this decision. One must balance on the other hand the added mortality from cesarean section if performed against the mortality to be expected from eclampsia if it develops.

It is along lines such as these, then, that countless numbers of cases of eclampsia have been prevented in recent years and the incidence of the disease reduced. During the past few decades, as we have already noted, the death rate from eclampsia has also been brought to a fraction of what it was at the turn of the century. It may be seen from chart 2 that the falling maternal mortality rate from eclampsia at the Johns Hopkins Hospital is directly associated with the type of treatment given. Prior to 1916 therapy was governed by the belief that immediate delivery was imperative. Consequently, accouchement forcé, manual dilation of the cervix and cesarean section were the favored pro-

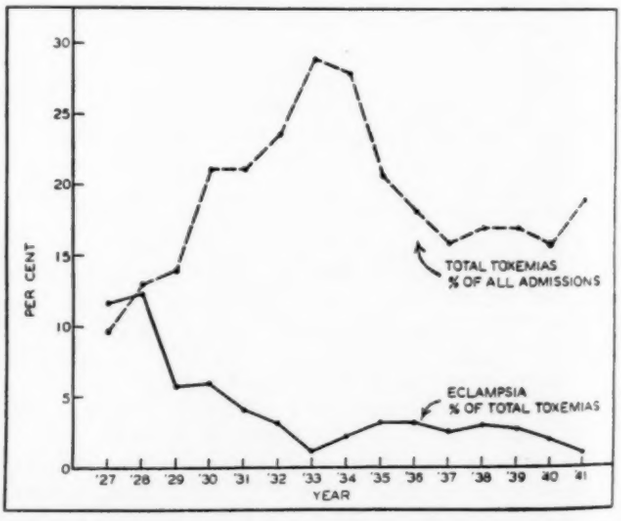

Chart 1.—Eclampsia constitutes a smaller proportion of total toxemia than it did fifteen years ago.

cedures of that day, with the tragic results that are shown, a mortality rate between 20 and 23 per cent. Between 1917 and 1922 an effort was made to be more conservative, but if the condition was at all severe or if sedative treatment was unsuccessful in stopping the convulsions immediately, the fortitude of the attendants failed and radical operative delivery was effected. Nevertheless a substantial improvement resulted with

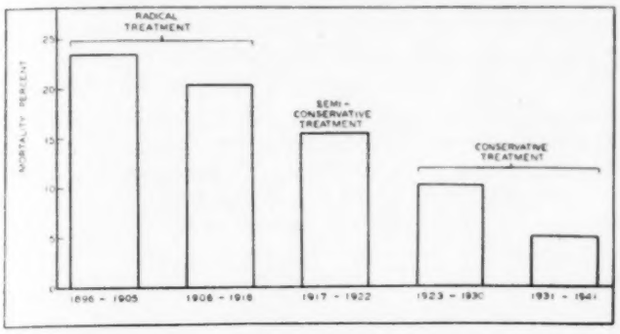

Chart 2.—The decreasing maternal mortality of eclampsia as the result of conservative treatment.

a death rate around 16 per cent. Between 1923 and 1930 a modified Stronganoff regimen was followed, and under no circumstances was operative delivery employed except for occasional outlet forceps. This reduced the mortality rate to 10.2 per cent. During the past decade the death rate has diminished still further as the result, possibly, of greater individualization of cases, more liberal use of hypertonic dextrose solution intravenously and digitalization.

These figures speak for themselves and leave no doubt that radical operative treatment is deadly to eclamptic patients. To be sure, it may seem illogical to condemn cesarean section in eclampsia when we recommended it in certain cases of severe preeclampsia. However, experience shows that once a patient has had a convulsion she is an extremely poor operative risk and remains so as long as she is in the active convulsive stage. Consequently sedatives, darkness and quiet constitute our best allies in the treatment of eclampsia. As for the best sedative drug to use, opinion varies, but during recent years we have been employing paraldehyde with satisfactory results. A dose of 30 cc. by rectum is administered on admission, followed by doses of 15 to 20 cc. as may be necessary to control the convulsion.

Having reviewed certain aspects of eclampsia, let us turn to some other phases of the toxemias of pregnancy. We have shown that, whereas the incidence of eclampsia was decreasing, the sum total frequency of all types of toxemia in our clinic population was increasing. This increase is due in large measure to the fact that gravid women with chronic hypertensive processes are becoming more and more of a problem. In chart 3 we have superimposed the graph of our incidence of chronic hypertensive vascular disease during the past fifteen years over the graph showing our incidence of eclampsia and total toxemia. It is apparent that chronic hypertension has made up a rather constant percentage of our total toxemias during this period; and, since the latter have increased, the conclusion is obvious that chronic hypertensive vascular disease is also being seen more frequently. During the past five years it has been observed about ten times more frequently than eclampsia.

Chronic hypertensive vascular disease used to be called "chronic nephritis" and is often referred to by internists as "essential hypertension"; but, by whatever name it is designated, the clinical characteristics are plain enough. The patient is usually in the upper age groups, in the thirties or late twenties; she is usually a multipara. Before the seventh month of gestation is reached, often during the first half of the process, the patient shows a pronounced elevation of blood pressure. The hypertension may have existed prior to pregnancy; if so, the early months of gestation bring about an increase in both systolic and diastolic pressure. Albuminuria and abnormalities of the urinary sediment may be absent, the renal function is often normal, edema is minimal or lacking and the patient has no complaints other than occasional headaches. But the hypertension persists, usually at a fairly constant level. At this time only one other positive finding may be noted, and that is narrowing and tortuosity of the retinal vessels; in other words, a retinal arteriolar sclerosis. The pregnancy may proceed to the expected date of confinement, or, as commonly occurs, the fetus may die in utero and be expelled prematurely. In either event the child is underweight, while the placenta shows an unusual number of infarcts, often red infarcts. After delivery there may be a slight recession in the blood pressure, but usually it remains indefinitely at a figure only slightly below that observed during pregnancy. Each subsequent pregnancy adds its increment to the hypertension, and, as a rule, the exacerbation in the blood pressure occurs earlier and earlier in each succeeding pregnancy. In most of these patients the hypertension and the arteriolar sclerosis persist for years without other findings; some show a more malignant course. Sooner or later, however, all manifest certain organic changes. The largest group, probably, show renal alterations: albuminuria and a rather rapid

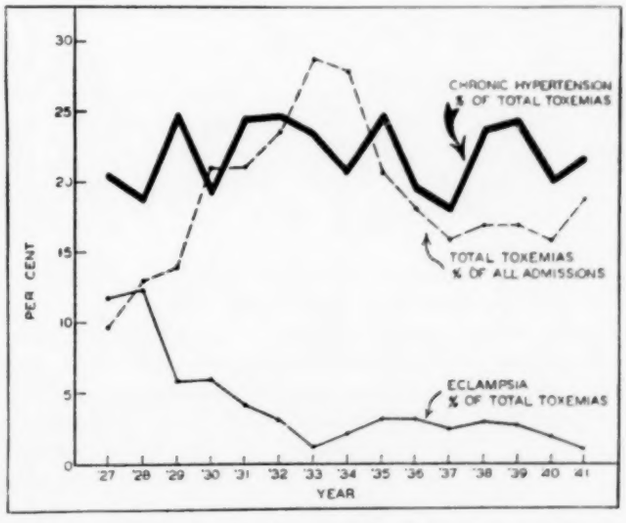

Chart 3.—Chronic hypertensive vascular disease has constituted a rather constant percentage of the total toxemias over the past fifteen years.

diminution in renal function. Once the latter sets in, the course is a short one and death ensues, often within a few months, from uremia. Another class of these hypertensive patients, possibly almost as large as the renal group, manifest cardiac changes: hypertrophy, occasional attacks of decompensation and finally fatal heart failure. In a third group, characterized usually by severe hypertension, death results from apoplexy.

At the present time large numbers of women with chronic hypertension are becoming pregnant and dying each year. The increasingly important role played by chronic hypertensive vascular disease in maternal mortality is clearly shown in chart 4. Here it may be seen that in our experience chronic hypertension is superseding eclampsia as a cause of death in childbearing and has been responsible for almost 80 per cent of our toxemic deaths in the past decade. Indeed, during the past quarter of a century the relative positions of eclampsia and chronic hypertensive vascular disease have become just reversed.

The problem presented by chronic hypertension in pregnancy is quite different from that of eclampsia and preeclampsia. In such patients we cannot prevent the occurrence of hypertension because they already had hypertension when conception took place; they already had at that time a sclerosed, inelastic arteriolar tree, and it is understandable that the 50 per cent increase in minute output of the heart which pregnancy imposes will place a severe burden on their vascular system. In the face of this chronic process and this load imposed by pregnancy, one can do but little in such cases to relieve the hypertension. But one can aid the patient

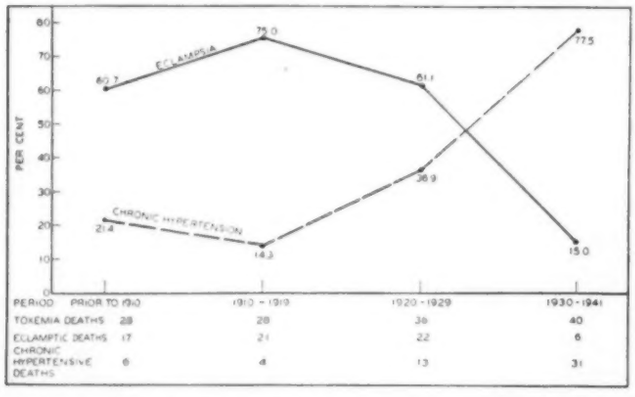

Chart 4.—Over the past quarter of a century the position of eclampsia and that of chronic hypertensive disease in this clinic have become just reversed as causes of maternal deaths.

by helping to prevent pregnancy. Hence the problem is largely one of preventive medicine in the sense that pregnancies should either be avoided altogether or should be limited.

Given a pregnant patient with chronic hypertension, what is the proper treatment? The answer depends on (1) the severity of the process, i. e. the blood pressure level and the degree of renal or cardiac damage, (2) the duration of the pregnancy when the patient is first observed and (3) the willingness of the patient and her husband to follow the physician's advice. Within rough limits the following types of treatment are recommended:

1. When the process is severe, that is, in the presence of blood pressure in excess of 170 systolic, albuminuria, reduced renal function, lowered cardiac reserve or fresh retinal hemorrhages, there should be immediate termination of the pregnancy whatever the stage of pregnancy.

2. If the process is mild, with blood pressure of 140 to 145 systolic, no albumin, normal renal function and normal eyegrounds, the pregnancy may be allowed to continue with the patient under close observation for signs of impending trouble.

3. In the large intervening group of patients with blood pressure in the neighborhood of 150 to 160 systolic, without albumin in the urine or with a small amount only and with very slight evidence of damage elsewhere in the body, the question is a difficult one. The duration of the pregnancy, the parity of the patient, the ease with which pregnancy could be terminated and the patient's desire for the child must all be considered. It is the physician's duty, however, to warn the patient of the risks accompanying the continuation of pregnancy under such circumstances.

If, for any of these reasons, immediate termination of pregnancy becomes necessary, what procedure is to be followed? In deciding between the abdominal and the vaginal route a point of primary importance is whether or not sterilization is to be performed along with interruption. As a general rule any chronic disease making interruption of pregnancy advisable is also an indication to terminate the childbearing career. The following summary may help as a guide.

If sterilization is not to be done: (1) If the pregnancy is of less than fourteen weeks' duration, therapeutic abortion from below is recommended; (2) if the pregnancy is between fourteen and thirty weeks' duration, abdominal hysterotomy is advised; (3) if the child is viable, or possibly viable, the problem arises of allowing the pregnancy to continue until the child has a reasonable chance of survival. This will depend on the severity of the process and duration of the pregnancy. Whenever possible under these circumstances delivery from below should be carried out. Cesarean section should be reserved for severe cases in which conditions are such as to make rupture of the membranes unwise, usually the presence of a firm, long, tightly closed cervix.

If sterilization is to be performed: (1) If the pregnancy is of less than thirty weeks' duration, abdominal hysterotomy with tubal sterilization or abdominal hysterectomy is recommended; (2) if the pregnancy is of more than thirty weeks' duration, pelvic delivery if possible is advised, followed by sterilization in the early puerperium. Cesarean section should be performed not merely because sterilization is to be carried out but only when difficulty with pelvic delivery can be anticipated.

There is one further type of patient frequently encountered, namely the patient who shows mild but definite hypertension during one or more pregnancies but whose blood pressure is normal between pregnancies. This patient has the so-called repeat toxemia of pregnancy, and the evidence is gradually accumulating to prove that such patients if allowed to go through successive pregnancies eventually develop chronic vascular damage. Their childbearing careers should be limited by one means or another.

Our weapons, then, in dealing with chronic hypertension in association with pregnancy are (1) education of the patient with emphasis on the prevention of pregnancy, (2) interruption of pregnancy if necessary and (3) sterilization at the time of delivery or after delivery. Not only is the hypertensive patient an extremely poor obstetric risk, but each additional pregnancy appreciably shortens her life expectancy. The problem she presents is becoming one of the most frequent, as it is certainly one of the most serious, in modern obstetrics.

PANEL DISCUSSION ON PEPTIC ULCER

The following took part in the discussion: B. R. Kirklin and William C. MacCarty Jr., Rochester, Minn. J. Earl Thomas, Philadelphia. Samuel Morrison and Maurice Feldman, Baltimore. Harry Shay, Jacob Gershon-Cohen, Samuel S. Fels and Herman Siplet, Philadelphia. Asher Winkelstein, Albert Cornell and Franklin Hollander, New York. John M. Blackford and Horace E. Allen, Seattle. Jacob Meyer, Hertha John Sorter and Heinrich Necheles, Chicago. V. C. Rowland, Cleveland. J. William Hinton and Reynold E. Church, New York. Everett D. Kiefer, Boston.

The papers which do not appear in the present issue of The Journal will be published in the next issue, together with the discussions from the floor.

INCIDENCE OF MALIGNANCY IN PREPYLORIC ULCERS

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The incidence of malignancy in gastric ulcers near the pylorus, long assumed to be disproportionately higher than that of ulcers situated elsewhere in the stomach, has become in recent years an open question. In 1925 Orator [1] found in a survey of material at von Eiselsberg's clinic that 30 per cent of prepyloric ulcers were carcinomatous whereas only 2 per cent of ulcers on the lesser curvature in the median portion of the stomach were carcinomatous, and malignancy of duodenal ulcer almost never was observed. In 1929 Haudek [2] gave his influential endorsement to Orator's conclusions. Later one of us (B. R. K.),[3] who often had heard Carman comment on the frequent occurrence of malignancy in prepyloric ulcers, expressed the opinion that ulcers near the pylorus are more likely to be carcinomatous than those on or near the lesser curvature well removed from the pylorus. References could be multiplied easily to show that for many years similar views were held commonly, and this consensus was strengthened in 1933 by Hampton [4] when he reported that all prepyloric ulcerations observed at the Massachusetts General Hospital during a period of three years proved to be carcinomatous. However, a few observers had begun to doubt the view of the majority, or at least to suspect that confusion had arisen from failure to agree on definitions of terms or from differing bases of study. Then in 1936, from material comparable in extent with that of Hampton, Singleton [5] concluded that in any given case of roentgenologically demonstrable ulcer within 1 inch (2.5 cm.) of the pyloric sphincter the mathematical probabilities are at least two to one, and more likely four to one, that it is a benign ulcer. Thus the issue has become definitely joined, and in order to contribute data that may aid in solving it we have reviewed a series of cases seen at the Mayo Clinic.

As a preliminary to the projected survey, all gastric lesions diagnosed roentgenologically and proved surgically and pathologically at the clinic during a single presumably typical year (1939) were canvassed to discover the proportion of prepyloric to other gastric lesions and the proportion of benign to malignant prepyloric lesions. In all there were 373 cases; the pyloric segment was the site of involvement in 112 (30 per cent), and 93 (83 per cent) of these proved to be malignant as against only 19 that were benign.

MATERIAL

Since a roentgenologic approach to the investigation seemed most expedient, it was determined to review all cases in which the roentgenologic diagnosis at the clinic was prepyloric ulcer, ulcerating or obstructing lesion at the pylorus or duodenal ulcer, during the five year period 1937 to 1941 inclusive. Cases in which carcinoma had been diagnosed definitely as such were not included. Records of all the cases were reviewed and only those proved surgically and pathologically were accepted for study. Fluoroscopic notes and roentgenograms were gone over in each instance. Especial care was taken to determine the situation of the lesions, and only those that were confined to the 3 cm. of stomach immediately proximal to the pyloric ring or that appeared to have originated in this segment were considered to be prepyloric. In this connection it is noteworthy that both Hampton and Singleton confined their study to lesions in the distal 2.5 cm. of the stomach. Our series comprises 190 cases.

ROENTGENOLOGIC DATA

Taking separately the classifications according to diagnosis, there were 47 cases in which the examiner discerned a niche-producing lesion which appeared to be purely ulcerous, without tumefaction or other indication of malignancy, and the roentgenologic diagnosis accordingly was ulcer, implying that the ulcer probably was benign, although malignancy could not be excluded positively. At operation and pathologic examination a benign prepyloric ulcer was found in 34 instances and a malignant prepyloric ulcer in 5 instances. In the remaining 8 cases the lesion proved to be ulcerating carcinoma in 3 and ulcer at the base of the duodenum in 5.

A diagnosis of ulcerating lesion at the pylorus was made in 26 instances. In 9 a benign prepyloric ulcer was found, malignant ulcer in 2, ulcerating carcinoma in 10, duodenal ulcer near the pylorus in 4 and carcinoma of the pancreas in 1. Although the examiner

Read in the Panel Discussion on Ulcer before the Section on Gastro-Enterology and Proctology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

1. Orator, Viktor: Beiträge zur Magenpathologie: Zur Pathologie und Genese des Carcinoms und Ulcuscarcinoms des Magens, Virchows Arch. f. path. Anat. **256**: 202-229, 1925.

2. Haudek, Martin: X-Rays in Diagnosis of Early Carcinoma of the Stomach, Brit. J. Radiol. **2**: 421-433 (Sept.) 1929.

3. Kirklin, B. R.: Roentgenologic Diagnosis of Benign and Malignant Ulcerating Lesions of the Stomach, Proc. Staff Meet., Mayo Clin. **7**: 728-730 (Dec. 21) 1932.

4. Hampton, A. O.: The Incidence of Malignancy in Chronic Prepyloric Gastric Ulcerations, Am. J. Roentgenol. **30**: 473-479 (Oct.) 1933.

5. Singleton, A. C.: Benign Prepyloric Ulcer, Radiology **26**: 198-204 (Feb.) 1936.

obviously was in doubt as to the character and sometimes as to the exact site of the lesion, it is noteworthy that 5 of the ulcerating carcinomas were reported as being probably malignant.

A diagnosis of obstructing lesion at the pylorus was returned one hundred times. Benign prepyloric ulcer was found in only 9 instances, ulcerating carcinoma in 43, duodenal ulcer in 44, carcinoma of the pancreas in 3 and carcinoma of the gallbladder in 1. In 19 of the 43 ulcerating carcinomas the examiner suggested in his report that the lesion probably was malignant. When the pyloric canal is much obstructed, it is often difficult or impossible to determine whether the obstructing lesion is immediately at, above or below the pyloric ring, and when the lesion is a duodenal ulcer its depiction often is so unsatisfactory that the ulcer cannot be identified. This accounts for the high proportion of duodenal ulcers in this group.

In 17 cases a diagnosis of duodenal ulcer was made. In 2 instances the diagnosis was correct, but in both an accompanying prepyloric benign ulcer was overlooked. In the remaining 15 instances the lesion proved to be benign prepyloric ulcer in 9, malignant prepyloric ulcer in 1 and ulcerating carcinoma in 5.

PATHOLOGIC DATA

After the duodenal ulcers and the carcinomas of the gallbladder or pancreas were deducted there remained 132 prepyloric ulcerating lesions, of which 61 were frank tumefactive carcinomas with ulceration and 71 were ulcers. Of the 71 ulcers, 63 were benign and 8 (11.3 per cent) were malignant. This percentage would indicate that prepyloric ulcers are not more likely to be carcinomatous than ulcers situated elsewhere in the stomach, for it is accepted generally that from 10 to 12 per cent of all gastric ulcers, including many that appear grossly and roentgenologically to be benign, prove microscopically to be malignant. Thus the figures derived from this study are in consonance, though not identical, with those of Singleton and are definitely at variance with those of Orator, Hampton and others.

COMMENT

Probable or potential reasons for these conflicting statistics and conclusions make an interesting theme for speculation. Differing bases and methods of calculation might account for some inconsistencies and disagreements but not for utterly contradictory data and deductions. It seems most likely, therefore, that the discordance arises from differing definitions and connotations of terms. Although not universally accepted, or at least not always strictly applied, classification of the lesions under consideration as ulcers, malignant ulcers and ulcerating carcinomas is of practical value and is warranted by differences in their morphologic characteristics.

According to this classification, which we have employed in this study, the term "ulcer," with or without the qualifying adjective "benign" or "simple," implies a nonmalignant peptic ulcer, the crater of which is sculptured in the gastric wall, seldom has a diameter exceeding 2.5 cm. and does not have any tumefaction of its borders except in the rather uncommon instances of callous ulcer. Roentgenologically the crater is exhibited as a true niche projecting beyond the normal confines of the gastric lumen, and adjacent rugae are likely to be accentuated and convergent. The designation "malignant ulcer" is restricted conveniently and properly to a lesion that has the morphologic characteristics of benign ulcer but on microscopic examination is found to be carcinomatous. Its malignant character sometimes can be surmised if the crater is unusually large or has an irregular profile, or if tenderness to pressure or spastic manifestations are lacking. The term "ulcerating carcinoma" speaks for itself, but it is helpful to confine it to ulcerating carcinomatous tumors in which both ulceration and tumefaction are demonstrable, either macroscopically or roentgenologically, thus distinguishing these malignant tumors from malignant ulcers. In the small carcinomas with which this study deals ulceration is a conspicuous, even dominant, element, but commonly the crater thus produced has not penetrated into the gastric wall and is entirely within the tumor, the remnant of which persists as an elevated ring around the crater. Roentgenologically the tumefied ring usually is demonstrable under pressure as a transradiant halo about the ulceration, the crater appears as a pseudoniche that does not project beyond the normal limit of the gastric lumen, the lesion is not tender to pressure, rugae adjoining it are subdued or effaced and the meniscus complex thus exhibited is pathognomonic.

If the foregoing distinctions were applied uniformly in all studies of the incidence of malignancy in gastric ulcers the results should not be widely different. There can be little doubt that the conflicting data and opinions now current are due to differing conceptions of benign ulcers, malignant ulcers and ulcerating carcinomas. This is all the more probable because most of the small ulcerating carcinomas are conspicuously ulcerous, the ulceration commonly being more striking than the tumefaction, and it is not altogether illogical to regard them as malignant ulcers. If all prepyloric ulcerous lesions, regardless of size, degree of penetration and the presence or absence of visible tumefaction, are to be considered ulcers, then an overwhelming majority of them are indisputably malignant.

The latter consideration again brings up a point even more important than the precise incidence of malignancy in prepyloric lesions that properly or preferably may be called ulcers, and that point is the fact that among all prepyloric lesions, regardless of their morphologic variety, 4 out of 5 are malignant. The roentgenologist should be able to identify most cases of hypertrophy of the pyloric muscle and hypertrophic rugae, about half the benign ulcers and a greater proportion of ulcerating carcinomas large and small. But there will remain many small prepyloric lesions, as well as a few ulcers in the base of the duodenum, that he cannot diagnose specifically, and since a majority will prove to be carcinomatous, his report should be made in terms that will put the clinician on guard.

SUMMARY

The prevalent assumption that prepyloric ulcers are more likely to be malignant than ulcers situated elsewhere in the stomach has been challenged in recent years. To elicit information that may help to solve the question, ulcerous prepyloric lesions observed roentgenologically and operated on at the Mayo Clinic during the period 1937 to 1941 inclusive were reviewed, subject to commonly accepted conceptions and definitions of the terms "simple ulcer," "malignant ulcer" and "ulcerating carcinoma." All ulcerating carcinomas that had been diagnosed roentgenologically were excluded from con-

sideration. After other exclusions made necessary by the roentgenologic approach, there remained 61 ulcerating carcinomas and 71 ulcers, of which 63 were benign and 8 (11.3 per cent) malignant. These figures are compatible, though not identical, with the generally accepted estimate that from 10 to 12 per cent of all gastric ulcers, including many that appear roentgenologically and macroscopically to be benign, prove to be malignant. This study thus supports the newer view that prepyloric ulcers are not more often carcinomatous than gastric ulcers in other situations.

On reflection it seems evident that the highly diverse estimates as to the incidence of malignancy in prepyloric ulcers result from varying definitions and applications of the term ulcer.

Of much greater importance than the exact incidence of malignancy in prepyloric ulcers as strictly defined is the fact that a large majority of the lesions in this part of the stomach are ulcerous and malignant.

THE MODERN CONCEPTION OF GASTRIC SECRETION

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Since the year 1870, when Heidenhain [1] discovered the chief cells (hauptzellen) and distinguished them from the parietal cells (belegzellen) of the gastric glands, the gastric juice has properly been regarded as a mixture of secretions produced by the various cellular elements of the gastric mucosa. Bensley [2] differentiated the chief cells of the neck from those of the body of the gastric glands. Lim [3] confirmed Bensley's observations and suggested the name "mucoid cells" for the neck chief cells. In addition to the true gastric glands which are found in the body and fundus of the stomach and are made up of the elements already mentioned, the pyloric glands and the mucous cells of the surface epithelium contribute to the secretion.

The parietal cells are believed to secrete a relatively pure solution of hydrochloric acid of constant strength. Estimates by various authors of the secreted concentration [4] range between 0.154 [5] and 0.2 [6] normal. The majority of the chief cells, exclusive of the neck cells, secrete pepsin,[7] possibly with a certain amount of water or neutral chloride solution. The "neck chief cells" (Bensley cells) are believed to secrete mucus [8] which, however, differs from the mucus ordinarily seen floating in gastric juice in that it is either soluble or so suspended that its presence cannot be detected by inspection. It is, therefore, sometimes referred to as "dissolved mucus" (Webster and Komarov, cited by Babkin [9]).

The cells of the pyloric glands have the same staining reactions as the neck chief cells [2] and on that account are supposed to form a similar secretion. Whether or not this secretion contains pepsin has been a subject of some controversy,[10] but the preponderance of evidence, especially the recent work of Jennings and Florey,[11] indicates that the pyloric secretion contains a small amount of a proteolytic enzyme, presumably pepsin, which is active in acid solution. The visible mucus of the gastric juice is probably secreted by the surface epithelium.[9]

In addition to these specific secretions, the gastric juice contains nonprotein nitrogenous substances, including among other things amino acids,[12] amines (e. g. histamine), urea and ammonia. It also contains a variable quantity of neutral salts, chiefly chlorides. These substances may enter the gastric juice along with some of the specific secretions, or they may enter by simple diffusion from the blood. Some of them may be formed in the stomach by the interaction of various constituents of the secretion; for example, neutralization of hydrochloric acid or digestion of mucin.

The present discussion deals with the manner in which the various secretory elements of the gastric mucosa are activated and their secretion is regulated. The secreting cells are influenced by stimuli which either increase (excite) or decrease (inhibit) their functional activity. Some of these stimuli reach the glands by way of the nervous system; others which are of a chemical nature are carried by the blood stream or, possibly, formed in situ.

NERVOUS EXCITATION

Secretory fibers for the gastric glands are found in the vagus [13] and splanchnic [14] nerves. Vineberg [15] observed that weak stimulation of the vagi caused a secretion consisting only of mucus and a small amount of pepsin. Stronger stimulation first increased the pepsin content of the juice and finally brought about a secretion of acid as well. In the light of the current conception of the "all or none" response of nerve fibers, these results indicate that the most irritable (to electric

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Read in the Panel Discussion on Ulcer before the Section on Gastro-Enterology and Proctology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

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stimulation) vagus fibers innervate only the surface epithelial cells, fibers of intermediate irritability excite the zymogenic chief cells or peptic cells or possibly only the mucoid or neck chief cells, which may also secrete some pepsin, and the least irritable fibers excite the parietal cells. Such a precise distinction between separate nerve fibers may apply only under special experimental conditions, but the more general conclusion that each individual type of gland cells is innervated by a distinct group of nerve fibers [9] appears to be justified. It may be further presumed that normal or pathologic reflexes may act selectively through one or another group of nerve fibers and thus influence the secretion of mucus, pepsin or hydrochloric acid separately.

Baxter [14] found that stimulation of the splanchnic nerves induced secretion of mucus with slight peptic activity, chiefly from the pyloric portion of the stomach. He expressed the opinion that the secretion came from the pyloric glands rather than from the surface epithelium. The work of Vollborth and Kudryavzev [14] indicates that the splanchnics send a few fibers also to the parietal and chief cells of the gastric glands.

CHEMICAL EXCITATORY STIMULI

The best known chemical stimulus for gastric secretion is histamine. The secretion resulting from histamine stimulation contains a relatively large proportion of hydrochloric acid and a relatively small amount of pepsin and mucus.[16] Histamine, therefore, acts as a powerful stimulus for the parietal cells. Since "histamine juice" regularly exhibits some peptic activity,[17] however slight, histamine may also stimulate, but less powerfully, other secretory elements of the gastric glands. This is not a necessary conclusion, since the pepsin present undoubtedly results, in some cases, from contamination of the stimulated secretion with resting secretion, especially in human beings, or it may be washed out of the gastric glands by the free flow of hydrochloric acid,[18] or it may, as suggested by Lim and Ma,[17] result from secondary stimulation of the chief cells by the secreted hydrochloric acid.

A variety of other chemical substances, e. g. peptones, various meat extracts and liver extract, stimulate gastric secretion when applied to the gastric or intestinal mucosa or, in the case of some of them, when administered parenterally. Their mode of action has recently been discussed by Babkin.[19]

Of particular interest is an extract of the pyloric mucosa prepared by Komarov [20] which acts very much like histamine on gastric secretion but possesses none of the other properties of histamine. It is, possibly, a hormone concerned with the humoral stimulation of gastric secretion. The fact that it, like histamine, acts mainly on the parietal cells suggests that hormonal stimulation of gastric secretion may be concerned primarily with the secretion of hydrochloric acid.

NERVOUS INHIBITORY INFLUENCES

The well known inhibitory effect on gastrointestinal motility of noxious stimuli is probably paralleled by inhibition of various secretions, although surprisingly little reference to such inhibition is to be found in the literature. Dogs that become nauseated and vomit during an experiment on gastric secretion cease to secrete acid for the time being and secrete instead large amounts of mucus. In acute experiments gastric secretion is inhibited for a time following the operative procedures, and stimulation of the secretory nerves is without effect.[21]

ACID AS AN INHIBITORY AGENT

Pavlov [21] reported that the presence of an excess of hydrochloric acid in the stomach inhibits secretion of acid by the gastric glands. This observation was confirmed by McLean and Griffiths [22] and later by Wilhelmj, O'Brien and Hill.[23] The former authors noted that the peptic activity of the juice increased during acid inhibition. Acid in the intestine also generally inhibits gastric secretion,[24] but negative results have been reported.[25] Whether or not inhibition occurs depends somewhat on the character and strength of opposing excitatory stimuli.[26] When the stimulus is alcohol, the inhibitory effect of acid in the duodenum appears to influence mainly the parietal cells, since the peptic activity has been observed to increase [27] during the period of inhibition. On the other hand, studies in progress in the Jefferson Physiological Laboratory suggest that, during the first half hour after feeding meat, acid in the intestine has little effect on the volume or acidity of the secretion from a Pavlov pouch but diminishes the output of pepsin.[28]

THE EFFECT OF FAT

The most important inhibitor of gastric secretion is fat. The inhibitory effect is usually followed by secondary augmentation of secretion.[29] Although the

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initial effect of fat is to depress all secretory elements of the gastric glands, secretion can be stimulated by appropriate means an hour or so after the fat has been given. Secretion obtained under these circumstances may be of approximately normal volume and acidity but possesses very little peptic activity.[31] Evidently fat inhibits the pepsin secreting elements of the gastric glands more powerfully at this stage than those responsible for secretion of water and hydrochloric acid. The selective inhibitory effect of fat on the pepsin secreting cells is particularly well shown following the administration of pilocarpine. In experiments reported by Alley and Babkin,[32] although fat failed to affect the volume of the secretion elicited by pilocarpine, the peptic power was reduced about two thirds. The secondary augmentation of secretion by fat also apparently affects the zymogenic cells first, since the peptic power of the gastric juice in human beings has been observed to increase [29] following fat inhibition before there was any recorded increase in volume or acidity.

THE EFFECT OF DEXTROSE

Dextrose in the intestine generally inhibits gastric secretion [33] but when given orally one-half hour before alcohol is administered it has been observed [34] to increase the total output of pepsin while diminishing the volume of the secretion. The effects of dextrose when given intravenously [35] are complex and appear to depend on the amount and concentration of the dextrose solution injected and the nature of the stimulus used to provoke secretion. The secretion produced by insulin (hypoglycemia) is readily inhibited by intravenous dextrose. On the other hand, severe grades of hypoglycemia, even though insufficient to cause symptoms, may inhibit gastric secretion.[36]

CHEMICAL INHIBITORS OF GASTRIC SECRETION

Since fat in the intestine inhibits secretion in gastric pouches without a nerve supply [37] a humoral mechanism is necessarily involved. This does not exclude the possibility, suggested by the predominant effect of fat on enzyme secretion, that the inhibition in the intact animal is primarily reflex, but the proved existence of an inhibitory humoral mechanism is important theoretically and also because of its clinical possibilities. An extract of intestinal mucosa which had been in contact with fat was prepared by Kosaka and Lim [38] and was shown to inhibit the gastric secretory response to a meat meal in Heidenhain pouch dogs. They proposed the name "enterogastrone" for the active agent. This substance has since been studied extensively by Ivy and his co-workers, who have succeeded in preparing it in relatively pure form.[30]

More recently a substance has been extracted from the urine of normal men and women and also from the urine of experimental animals which has an action similar to that of enterogastrone.[39] The inhibitory substance in urine has been designated "urogastrone." [41] This or another substance closely associated with it has been used with good results for the prevention (in dogs) or treatment (in patients) of peptic ulcer.[42]

Unfortunately no information is available regarding possible selective inhibition of specific secretory elements of the gastric glands by enterogastrone or urogastrone, but since depression of acid secretion has been used in the study of these substances as the criterion of inhibition it may be assumed that the parietal cells at least are involved. The known selective action of fat suggests a study of the possible inhibitory effect of these agents on the peptic cells.

INTERNAL SECRETIONS AND VITAMINS

Since the publication of Keeton's [43] work in 1914 it has been known that parathyroidectomy adversely affects gastric secretion. Keeton found that in cats removal of the parathyroids and the subsequent decrease in blood calcium resulted in a decrease in volume, acidity and especially peptic activity of the gastric juice. The condition was improved by administration of calcium. More recent studies have shown that increase in blood calcium following administration of activated ergosterol [44] or solution of parathyroid [45] has a like effect, especially on the reflex or nervous phase of secretion; [44] it has little or no effect on the response to histamine.[46] Recently, Gray and Adkison [47] have studied acid secretion by the isolated gastric mucosa of the frog's stomach. They found that either an increase or a decrease in the calcium concentration above or below 2.5 milliequivalents per liter in the solution in which the mucosa was immersed decreased its capacity to secrete acid. Apparently the normal blood calcium is optimal for the gastric glands, as it is for other bodily functions.

Thyroidectomy [48] and thyroparathyroidectomy [45] have been reported to increase the volume of the gastric secretion. Following the latter operation the peptic activity and total pepsin secreted were reduced in spite of the increase in volume; the blood calcium was reduced to about 7 mg. per hundred cubic centimeters. Correcting the calcium deficiency restored the volume of the secretion but not the peptic activity to normal.

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Various vitamin deficiencies, particularly of the B complex, may affect gastric secretion.[49] Absence of the B complex from the diet of dogs results in achlorhydria,[50] which is readily cured by administration of yeast. Which of the B vitamins is responsible for the effect has not been determined. B_1 deficiency did not affect gastric secretion in rats.[51] The vitamins probably owe their influence on gastric secretion to their effects on the nutritional state of the secreting cells and are not to be regarded as gastric secretory stimulants in the sense in which the term is being employed here. A possible exception is nicotinic acid, which is said to have a histamine-like effect on gastric secretion.[52] The literature has recently been reviewed by Wilbur.[53]

COMMENT

While surveying the action of the various stimuli which either increase or decrease gastric secretion, one is impressed with the frequency with which individual stimuli have been found to affect more or less exclusively the secretion of some one component of the gastric juice, such as mucus, pepsin or hydrochloric acid. It has been assumed,[54] but without any considerable body of systematic evidence to support the assumption, that such stimuli as are capable of provoking gastric secretion stimulate simultaneously all the various types of gland cells which may contribute to the secretion. Obvious variations in composition of the gastric juice were referred to differences in the rate of secretion, certain cells being supposed to respond more vigorously than others to increasing intensity of stimulation.

The point of view which I choose to call "the modern conception of gastric secretion" is the exact opposite of that just outlined. It is the result largely of researches carried out at McGill University in Montreal by Prof. B. P. Babkin and his pupils and the interpretation of these researches by Dr. Babkin.[55] Babkin finds that "The secretory activity [of mixed glands] is not regulated *en masse* but various nerves . . . or chemical agents stimulate or inhibit each set of secretory elements separately."

If this conception is correct, and the evidence seems to me to indicate that it is, one may consider the possibility of regulating for therapeutic purposes not only the volume but the composition of the gastric secretion. Such an attainment would doubtless require as a preliminary a considerable increase in our knowledge, but there appear to be no insurmountable obstacles in the way of acquiring the necessary information.

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PSYCHOSOMATIC CORRELATIONS OF DUODENAL ULCER

A STATISTICAL STUDY

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For many years we have been impressed by the fact that cases of duodenal ulcer present a characteristic constitutional psychosomatic pattern. The psychosomatic aspect of disease, with especial reference to its association with duodenal ulceration, has been considered by many authorities as an important contributory factor in the production and intensity of symptoms in peptic ulcer. Psychosomatic phenomena have been strongly emphasized in recent years, although their importance as etiologic factors have not been truly evaluated.

We have undertaken the study of a series of 208 consecutive cases of duodenal ulcer in an effort to correlate any relationship with psychosomatic changes. In this study we have especially noted the general psychoneurologic manifestations and their relation to the activity of the ulcer. We have restricted ourselves to overt manifestations (behavior, emotional attitudes, personality changes) in helping to form our psychosomatic impressions. We have also tried to evaluate the physiologic changes which are responsible for the digestive symptoms and have correlated both these phases with respect to their relationship with duodenal ulceration. The psychoneurologic symptoms most frequently noted were the general demeanor of the patient, the hyperirritable sensitive type, and his somatic response to nervous tension, i. e. tenseness, anxiety, irritability, restlessness, sensitivity and various types of emotional instability and vasomotor disturbances such as sweating and flushing.

These patients are usually not well adjusted, partly because they are constantly annoyed by more or less stomach consciousness. Often they are unable to rest well or sleep well at night, being awakened by gnawing discomforts. Lack of rest is partly responsible for their inability to meet situations, their loss of confidence in themselves and their failure to contribute what they would consider a satisfactory day's work. Many of them are discouraged because they were supposed to have been cured of their ulcer one or more times. In the latter instance the physician may be open to criticism in failing to inform the patient that his program of eating, rest and activity will be restricted to a greater or less degree for an indefinite period. Partly because these patients are restricted in their range of activity they often become introverted and do not mix well with others. Restrictions of diet, for example, may cause them embarrassment and sensitiveness when they cannot partake of stimulants and foods such as others and in the presence of others. Nevertheless, many of these patients are very keen and very alert (a part of their general condition of being high strung) and sometimes one gets the impression that they overcompensate for their restricted life by doing certain

Read in the Panel Discussion on Ulcer before the Section on Gastro-Enterology and Proctology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

things exceedingly well. This state of the nervous system undoubtedly contributes to the patient's symptoms and often determines how severe, symptomatically speaking, an ulcer will be. Very often the nervous symptoms overshadow the actual organic disease. Interestingly enough, these patients are often of the type who live and work under tension; many of them are of the so-called executive type. One rarely encounters a phlegmatic patient with a duodenal ulcer, although ulcers do occur in such individuals. It is noteworthy that there is a correlation between the nervous spastic phenomena observed in the roentgenogram and the personality changes. Of the 208 patients, the nervous phenomena were particularly striking in 150.

Since no adequate explanation of the etiology of ulcer has yet appeared there is no harm in suggesting that a train of events such as this may occur: Repeated duodenal irritability leads to ischemia and loss of local viability, which when acted on by irritating boluses and acid finally culminates in necrosis of tissue and consequent ulcer. It would appear, therefore, that the play of impulses, the autonomic and central nervous system, the endocrines and what we here stress as a psychosomatic pattern is more intimately bound up with the production of duodenal ulcer than we now are able to explain. In the present state of our knowledge it must be admitted that such a relationship is often difficult to prove.

The intermittence of ulcer symptoms and their activation are not adequately explained even today. The question arises as to whether the periodic changes in personality tension contribute to the periodicity of ulcer. Furthermore, the relationship of the whole ulcer syndrome to the autonomic nervous system remains a mystery. The activation of nerve impulses by chemical means has now come to the fore; the relationships of the endocrine to various diseases and the hormonal and enzymatic aspects of disease are all intimately related to the central nervous system, and it is these factors which determine the constitutional type. It is our definite belief that the ulcer psychosomatic pattern is so distinct as to lead one frequently to suspect the condition even before a complete examination is made.

Early in adolescence in certain individuals a psychosomatic pattern is developed which is frequently characterized by three basic phenomena, namely hypersensitivity, hyperirritability and hyperactivity of the body tissues. It is our opinion (and we hope it is possible to follow up with more detailed studies) that tests of bodily functions would indicate a positive rather than a negative balance, by which we mean that the organism is hyperactive instead of hypoactive. If careful histories are taken it will be found that a large number of cases of digestive complaints frequently due to early ulceration begin during adolescence. With the newer knowledge of hormones and humoral elements (such as the action of urogastrin) involved during the adolescent period, it would appear that a change in the normal physiologic mechanism of body function may play a predominant role in determining the ulcer pattern.

It is highly important to take the patient's history very carefully, since otherwise it will signify only the present and immediate continuous state of the digestive complaints. The patient will not voluntarily give a history dating back to the onset unless an effort is made to obtain this information. Therefore, many histories will not give a true picture of the actual age of onset. Patients with complications such as hemorrhage or obstruction may give a history of only very recently having any digestive trouble, and sometimes there appears to be no complaint until actual hemorrhage or other complications occur. This point is stressed because we are of the opinion that the age of onset can frequently be correlated with physiologic changes that occur during adolescence. We further believe that the psychosomatic pattern begins to form at this time.

We have endeavored to correlate the clinical manifestations of duodenal ulcer with gastric analyses and gastrointestinal roentgenographic studies. In the series of 208 proved cases of duodenal ulcer it was found that 166 were clinically active. It is interesting to note that most of these cases presented x-ray evidence of spastic and irritable phenomena throughout the entire gastrointestinal tract. Moreover, 61 of our series of 208 cases showed x-ray evidence of an ulcer niche, which is a demonstration of the objective anatomic change indicating activity of the ulcer, although the absence of a niche does not exclude activity.

Furthermore, one can readily observe the effect of the somatic changes on the bowel because most of the duodenal ulcer patients present certain bowel symptoms such as changes in type and frequency of stools, mucous colitis and irritable and spastic colon which were associated with the duodenal ulcer. The correlation of the stool habits with the roentgenologic and clinical manifestations of the duodenal ulcer picture lead to a fairly consistent history. The patients are usually on the constipated side often owing to spastic changes. Many of them are liquid petrolatum addicts, and though they may have occasional loose, frequent or soft stools, which they may describe as temporary diarrhea, this is not very common. The usual description of the stool is as follows: a flattened, ribbon or small segmented stool the bulk of which is also small. Very often many bowel movements may be had during the day, but added together they would really amount to only one satisfactory stool. These stools also often contain dried mucus and not uncommonly mucous casings and mucous strings. In 3 cases the roentgen examination revealed the string sign of mucous colitis. There are occasional cases in which the mucus is passed in large amounts, so much so that the bowel picture becomes predominant temporarily over the ulcer syndrome.

Interestingly enough, the ulcer symptoms are often brought under control by appropriate therapy, but the bowel symptoms remain the predominant feature in many cases. Clinically, we have noted in this series of 208 cases that 109 presented evidence of periodic cramps related to the bowels. It is noteworthy too that on examination of the stools the gross appearance in 53 cases presented evidence of spasticity. It was of interest to correlate these clinical neurologic bowel signs with the roentgenologic manifestations. Thus, of the 208 cases, 80 presented roentgenographic signs of an irritable spastic colon. The appearance or presence of spastic states of the colon is not only a local bowel condition but apparently a manifestation of a constitutional reaction. For example, in addition to the spastic phenomena noted in the bowel, 81 of these cases presented evidence of a spastic pylorus. From our statistics it would definitely appear that psychosomatic and neurologic findings are a part of the general picture

of duodenal ulcer, i. e. a general irritability in the personality as a whole and in various localities in the digestive tract in which the irritability expresses itself in spastic changes.

There is such a thing as prophylaxis of ulcer because a preulcer constitutional state can actually be determined. For example, it can be foretold that those individuals who present the characteristic psychosomatic ulcer pattern, especially when such a pattern is associated with spastic and irritable states of the gastrointestinal tract and hyperacidity, will likely fall into the ulcer group, by which we mean that their chances for developing anatomic ulcer changes are much greater than the average group. Though this analysis brings us no nearer to the explanation of the formation of an ulcer, it does give us a basis for prophylaxis and a preulcer treatment which thus far has been sadly neglected. We likewise believe that when more attention is directed to the psychologic aspects of ulcer, with their psychosomatic components, the proper therapy will lead to a far greater percentage of cures or arrested cases than does our present approach to the problem, especially if such attention is instituted in the early stages. As a prophylactic measure, therefore, we have made it a rule to devote a good part of our therapy to an educational and rehabilitation program regarding the condition and to a modified personality study with the object in view to remove as far as is possible the tense, anxious background reflected in the various psychosomatic changes.

Such questions as the frequency of duodenal ulcer in males rather than females and in younger rather than older patients also suggest the possibility of an endocrinologic and nervous system background. The fact that this pattern is so frequently and consistently seen in adolescent males, even before the development of ulcer symptoms, is a point to be considered as significant in the prophylaxis. Often patients, when carefully interrogated, relate the onset of digestive symptoms to a time which shows that the condition actually began in adolescence. It apparently takes a certain but varying period of time before the persistent ulcer symptoms fully develop. Therefore, there seems to be a long period of latency during which prophylactic therapeutic measures could be instituted. We believe that the type of individual with the constitutional pattern described has periods in which spastic irritable states of the digestive tract are present without demonstrable ulcer which only later develops into a characteristic ulcer picture in a certain proportion of cases. Many apparently overcome these preliminary psychosomatic states before actual organic disease develops. Some are constitutionally unable to adjust themselves, and as a consequence the combination of their psychosomatic pattern with the various physiologic changes often leads to the development of an ulcer.

SUMMARY

A study of 208 cases of duodenal ulcer was made to correlate the psychosomatic changes with the activity of the ulcer. A distinctive pattern was observed which was localized not only in the duodenum but also in the digestive tract and in the constitutional behavior of the patient. This pattern proved to be characterized by hypersensitivity, hyperirritability and hyperactivity which involved the affected duodenum, the digestive tract as a whole and the personality. Statistics relating to the incidence of the various psychosomatic phenomena associated with duodenal ulcer reveal a frequency which leads to a definite psychosomatic-ulcer pattern. In the cases studied there appeared to be a remarkable similarity of psychosomatic features which were conspicuous enough to lead to a correlation with the existing duodenal ulcer. It also appeared that psychosomatic influences may possibly represent an etiologic factor in the production of duodenal ulcer, although the mechanism requires further elucidation. This study suggests a prophylactic approach to the problem of duodenal ulcer, since a general constitutional pattern is disclosed which often antedates the actual appearance of the ulcer.

11 East Chase Street.

THE PHYSIOLOGIC BASIS FOR THE DIETOTHERAPY IN DUODENAL ULCER

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Diet in cases of duodenal ulcer is based on certain well established principles—that the foods are nonirritating, are not stimulating to gastric secretion and have a good acid combining power. Milk and cream have met these demands so well that they have come to play the basic part in ulcer diets. Khigine [1] many years ago, in comparing the response of dogs with a Pavlov pouch to meat, bread and milk, found that milk called forth a secretion lowest in volume and peptic activity. The acid combining power of milk and cream has also been adequately stressed. These foods, however, have in addition an action on the disordered gastric function responsible for much of the ulcer symptomatology. This action is perhaps less often considered yet in the final analysis is probably responsible for the most important influence of these foodstuffs in duodenal ulcer. It is the latter activity that we wish especially to emphasize, since we now have such a clear understanding of the mechanism involved.

Uncomplicated duodenal ulcer is characterized by certain changes in gastric function: hypermotility, hyperperistalsis, hypertonicity and hypersecretion. We believe [2] that these abnormal gastric conditions are caused by alterations in duodenal function brought about by the ulceration and its associated duodenitis. In the normal person the duodenum houses a mechanism, or mechanisms, which normally is stimulated by the gastric hydrochloric acid or by some ingested foods brought to the duodenum which help to control both gastric motor and secretory function. In duodenal ulcer this duodenal function is depressed, fails to respond

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Read in the Panel Discussion on Ulcer before the Section on Gastro-Enterology and Proctology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

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to the normal stimuli and results in the abnormal gastric phenomena seen in this disease.

That milk has a high acid combining power has been demonstrated by Freezer, Gibson and Matthews.[3] They found it capable of combining with its own volume of 0.3 per cent hydrochloric acid. While this represents a decided buffering effect, it probably represents the lesser effect of the milk, and especially of cream, in allaying symptoms of duodenal ulcer. We believe that the major beneficial action of milk and cream occurs only after these substances leave the stomach.

If a normal person is given a water-barium meal by mouth, the gastric evacuation time will be greatly prolonged if milk is substituted for the water and still further prolonged if the barium meal is prepared with cream (fig. 1, rows 1, 2 and 3). In analyzing the nature of this action we[4] found that the mechanism responsible for delayed gastric evacuation was in the upper small intestine (fig. 1, rows 4 and 5) and was activated by chemical[5] or physical[6] agents reaching the duodenum. Of these, fat was found to be very effective, and the greater efficiency of cream over milk would thus doubtlessly be due to the higher fat content of the former. We have previously shown[5] that stimulation of this duodenal mechanism not only delays gastric evacuation but also reduces gastric peristalsis and tonus. The stomachs of patients with duodenal ulcer respond in quite similar manner to milk and cream meals as well as to their instillation into the duodenum while a water-barium meal is administered by mouth.[4] Thus these substances cut down intragastric acidity by combining with the hydrochloric acid in the stomach and, in addition, on reaching the duodenum help to overcome the abnormal gastric motor phenomena—hypermotility, hyperperistalsis and hypertonicity. It becomes clear then why, from their effect on the gastric motor phenomena, milk and cream have kept their place on the ulcer diet.

Do milk and cream have other effects on gastric acidity besides gastric neutralization? Recently Eyerly and Breuhaus[7] reinvestigated the acid neutralizing power of milk in vitro and found the action to be less when the fat content was higher. While perhaps true for their buffering action, nevertheless the gastric acid reducing power of milk in vivo is greater the higher its fat content. This, however, is due to the action of the milk and cream on reaching the duodenum. It has been demonstrated[8] that man's duodenum houses a mechanism which, when stimulated chemically or physically, causes a depression in gastric secretion. This duodenal acid control mechanism may be activated by the gastric hydrochloric acid itself, as in the one concerned with gastric motor function, if it reaches the duodenum in proper concentration.[2] It may also be activated by hypertonic solutions of nonelectrolytes[9] like dextrose, or by electrolytes[9] like sodium chloride, and sodium bicarbonate. Too, it has been shown[8] that fats are especially potent in causing this activation. It is the fat content of milk and cream which determines the intensity of the inhibiting power of these foods (fig. 2). In many instances milk alone is not adequate to stimulate the gastric acid-reducing duodenal mechanism. Cream, however, in all cases caused a reduction of gastric acid when instilled slowly into the duodenum.

Figure 2 clearly illustrates the variations in gastric motility and acidity caused by different fat contents of milk and cream. To a patient a meal of 30 Gm. of zwieback and 300 cc. of water was administered and the usual fractional gastric analysis performed. Curve I was the result obtained for the free hydrochloric acid. A peak acidity of 81 clinical units was obtained and at one hundred and twenty minutes the stomach was

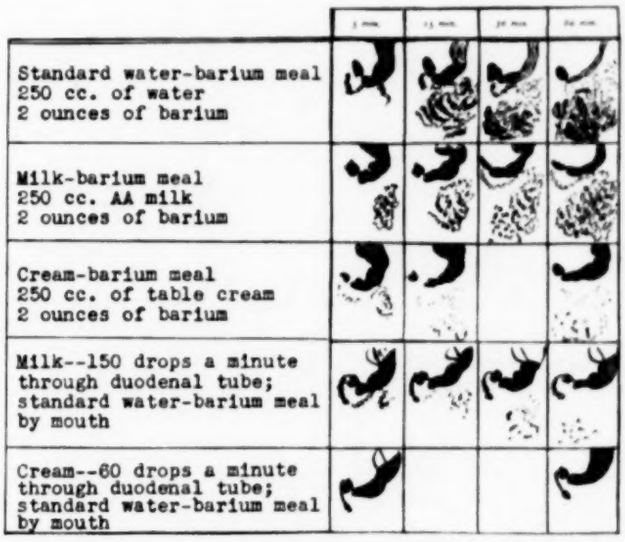
Standard water-barium meal
250 cc. of water
2 ounces of barium
Milk-barium meal
250 cc. AA milk
2 ounces of barium
Cream-barium meal
250 cc. of table cream
2 ounces of barium
Milk--150 drops a minute through duodenal tube; standard water-barium meal by mouth
Cream--60 drops a minute through duodenal tube; standard water-barium meal by mouth

Fig. 1.—Pen and ink drawings made to scale from roentgenograms. The stomach empties completely a 250 cc. water and barium meal in sixty minutes (row 1). When milk was substituted for the water a 30 per cent gastric residue was found at the end of a similar period (row 2). At another time the substitution of table cream for milk in the meal resulted in a 90 per cent stomach residue at the end of one hour (row 3). That the gastric motor delay caused by milk and cream is dependent on their reaching the duodenum was strikingly demonstrated by the effect on gastric emptying when these agents were instilled directly into the duodenum and a water and barium meal given by mouth (rows 4 and 5). Again, the more striking effect is seen when cream is used: 100 per cent gastric residue at sixty minutes when only sixty drops of cream a minute was instilled into the duodenum (row 5), and a very slight gastric emptying when as much as 150 drops of milk a minute was instilled into the duodenum under similar experimental conditions (row 4).

completely empty. A similar test meal was given on another day and skim milk was simultaneously instilled into the duodenum at the rate of 50 to 60 drops a minute; curve II was the result of the fractional test. While there was no significant change in the peak of the free acidity, a striking delay in gastric evacuation did occur. Under these conditions the stomach showed a gastric residue of 18 cc. at the end of one hundred and eighty minutes. Again, under similar test conditions, when A milk was substituted for skim milk, the gastric motor delay was still evident (curve III). Although the free acid curve is slightly lower, this change cannot

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be considered significant. When on another day, however, cream was instilled into the duodenum under test conditions similar to those described, a much greater gastric motor delay was produced (190 cc. gastric residue to one hundred and eighty minutes (curve V). An unmistakable depression of gastric acidity also took place.

The effect on gastric motility of milk and cream when they reach the duodenum, coupled with the depression of gastric secretion through the action of cream, make their time honored use in ulcer diets easily understandable. An appreciation of the mechanism of their action makes clear the reason they have retained their position in the ulcer diet at a time when fashions in treatment change so quickly for a disease whose cause is so poorly understood as that for peptic ulcer.

Olive oil too holds a traditional place in the treatment of hyperacidity. Its effectiveness in stimulating the gastric motor and secretory control mechanisms (fig. 3) on reaching the duodenum is even greater than that of cream.

The effect of the addition to the standard diet of small quantities of olive oil on the gastric secretion in dogs with a Pavlov pouch was recently demonstrated by the Komarovs.[10] They found that a single small dose of olive oil introduced into the main stomach a short time before a test meal of meat reduced the volume acidity and pepsin content of the gastric juice secreted by the pouch. This inhibition was especially noticeable during the first two or three hours post cibum. They also found that the daily addition to the standard diet of a similar small dose of olive oil inhibited gastric secretion more or less uniformly throughout the twenty-four hour period of observation. The rationale, therefore, of administering olive oil fifteen to thirty minutes before meals to patients with duodenal ulcer and hyperacidity who can tolerate the oil by mouth is

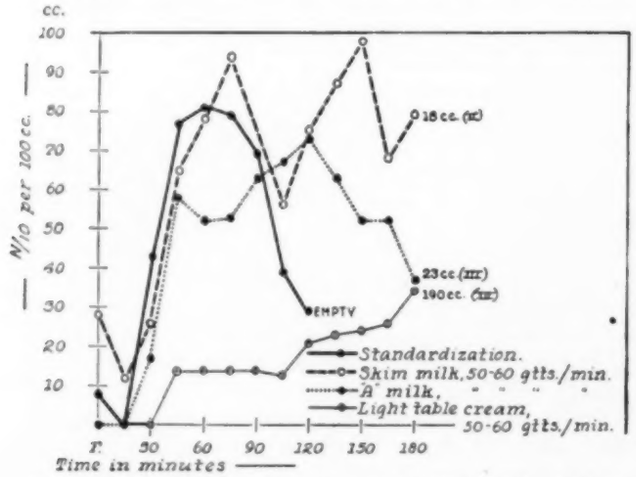

Fig. 2.—Free acid curves (milk or cream instilled into the duodenum—Ewald meal by mouth).

based, therefore, on sound physiologic facts. Of further significance are the demonstrations on dogs by Day and Komarov [11] and by ourselves [8] on human subjects that the duodenal mechanism concerned in the control of gastric acidity affects largely the nervous phase of secretion. Since the duodenal ulcer patient is so often one with an autonomic nervous system imbalance of the parasympatheticotonic type, we believe that these observations are especially pertinent.

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SUMMARY AND CONCLUSIONS

Milk and cream have long enjoyed a unique position in the dietotherapy of duodenal ulcer. Through a high acid neutralizing power they exert a beneficial effect

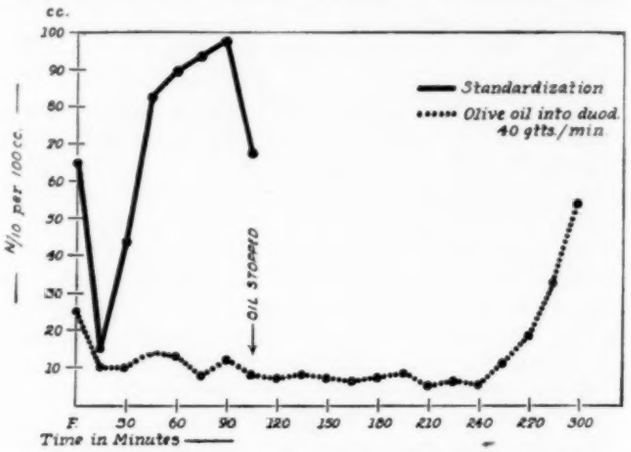
cc.
N/10 per 100 cc.
Standardization
Olive oil into duod. 40 gtts./min.
OIL STOPPED
F. 30 60 90 120 150 180 210 240 270 300
Time in Minutes

Fig. 3.—Free acid curves (olive oil instilled into the duodenum—Ewald meal by mouth).

in the stomach. After reaching the duodenum, and largely by the action of the fat content, they stimulate at least two mechanisms which bring about gastric motor and secretory inhibition. In this way they favorably influence the abnormal gastric motor phenomena seen in uncomplicated duodenal ulcer, namely hyperperistalsis, hypertonicity, hypermotility and hypersecretion.

It is clear that the threshold of response for the duodenal gastric motor mechanism is lower and requires a lesser stimulus than does the duodenal gastric secretory mechanism.

It is quite possible in the light of the conditions described that uncomplicated duodenal ulcers which fail to respond to an adequate course of medical therapy are, in some instances, ones in which the duodenal mechanisms described are so obtunded that they fail to react to the usual dietary agents which bring these mechanisms into play when they reach the duodenum.

Acting in the same capacity, but even more effectively and only on the duodenal mechanisms, is olive oil, an agent which holds a time honored place in the treatment of gastric hyperacidity.

Since medical opinion is again giving to gastric hyperacidity its proper value in the causation of peptic ulcer,[12] a disturbance of the duodenal mechanisms described may well explain at least one way in which ulcer is produced. Thus one may visualize a series of events as follows: a disturbance in the duodenal mechanisms described, in which their threshold of response is raised (e. g. duodenitis from one cause or another), resulting in (*a*) gastric motor changes producing hypermotility and increased evacuation with a consequent increased trauma to the duodenal cap and (*b*) gastric secretory changes which result in hypersecretion which add further trauma to the duodenal mucosa, conditions under which ulcerations may then occur.

Medical Tower.

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INTRAGASTRIC DRIP THERAPY FOR PEPTIC ULCER

A SUMMARY OF TEN YEARS' EXPERIENCE

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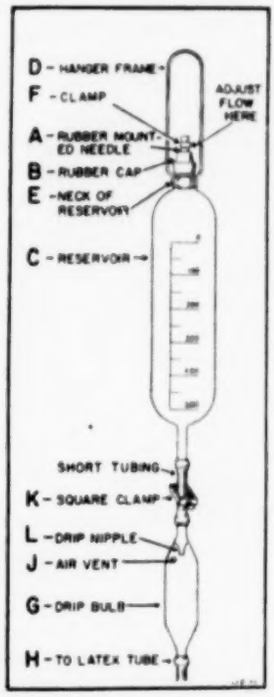
In 1932 one of us [1] devised the intragastric drip therapy for peptic ulcer. This therapeutic procedure was based on two ideas: 1. Whatever the ultimate cause of peptic ulcer may be, free hydrochloric acid plus pepsin is a prime factor in the development and persistence of the lesion. 2. Methods which are most effective in the neutralization of the free acidity throughout the twenty-four hours of the day are most likely to be successful in the medical therapy of peptic ulcer. In view of the fact that all previous methods of controlling the interdigestive secretion have been found inefficient, particularly throughout the longest interdigestive period, viz., the night,[2] the drip therapy was devised as a logical and fairly simple method of attaining this goal. The efficacy of the drip method in neutralizing gastric acidity is discussed in detail elsewhere.[3]

Suffice it to say that our studies indicate that both milk-sodium bicarbonate and alumina gel preparations are effective in raising the gastric p_H on the average from 1.5 to 4.0. Since free acid does not exist above a p_H of 3.5 and since 90 per cent of peptic activity is eliminated at a p_H of 4.0,[4] the digestive action of the hydrochloric acid-pepsin mixture is practically eliminated by this procedure, particularly during the night, when other forms of medication are usually discontinued.

The drip acts continuously and regularly, and its effectiveness may be due in part to the rationale of giving small doses of an antacid continuously rather than large doses intermittently. Frequent Sippy feedings may in themselves serve as a stimulus to increased acid secretion and may not allow sufficient functional rest, both motor and secretory. Furthermore, it does not seem logical to protect the ulcer crater for half of the day in order to allow granulation tissue to form and then to expose it to the strong corrosive action of gastric juice for the remainder of the twenty-four hours.

The original intragastric drip method devised by one of us (A. W.) was based on the excellent buffer properties of a mixture of milk with sodium bicarbonate and on the fact that milk provides good nutrition. It may be employed in the treatment of esophageal, gastroduodenal and gastrojejunal ulcer, but it is contraindicated in pyloric obstruction and in renal disease because the absorbable alkali may aggravate a systemic alkalosis; it is also contraindicated in patients who manifest allergic reactions to milk or who experience intestinal disturbances from it. In such cases the milk-sodium bicarbonate may be replaced by a nonabsorbable alkali; this will be discussed later. Originally this drip was administered continuously throughout the twenty-four hours of the day for two to three weeks. In recent years the treatment has been modified as follows: The patient receives three liberal bland meals daily and atropine with the usual sedatives. One hour after each meal the drip is started, and it is continued until one hour before the next meal—even while the patient sleeps at night.

Since 1934 the use of nonabsorbable alkalis for antacid therapy has become increasingly popular. Of these various preparations, gels of aluminum hydroxide and phosphate have the further advantages of being astringent and antipeptic, and they lend themselves readily to use in a drip apparatus.[5] Hence these two colloidal preparations can be substituted for the milk-sodium bicarbonate drip in conditions in which the latter is contraindicated and even offer certain advantages over the milk treatment. On the other hand, the lower cost of the milk, its nutritive value and the simplicity of the apparatus required for its administration all favor the use of the older form of drip medication whenever conditions permit.



Sketch of apparatus for intragastric drip.

DESCRIPTION OF DRIP APPARATUS AND TECHNIC

Because of the viscid nature of the alumina gels, it is necessary to employ an apparatus somewhat more complicated than the gravity drip flask that is employed for the milk drip. Our modification [6] of a common type of such apparatus has been employed in this hospital since January 1940 with satisfactory results. In setting up the drip (illustrated) one first fills the reservoir [6] with the preparation to be used. At present we employ aluminum phosphate gel diluted with 4 volumes of water, in preference to aluminum hydroxide, because it is less viscid and less constipating but no less effective as an intragastric neutralizer.

The rubber cap (*B*) is slipped over the neck (*E*) of the reservoir and both the upper clamp (*F*) on the air valve and the lower one (*K*) below the reservoir leading to the drip bulb are closed tightly. The lower clamp is then opened completely and kept that way while the drip is running. If the valve is airtight, a few cubic centimeters of fluid will run into the drip bulb (*G*), after which the flow will cease entirely. To start the flow of fluid the upper screw clamp (*F*) is next opened sufficiently to allow a free flow of material;

From the Gastro-Intestinal Clinic and the laboratories of Mount Sinai Hospital.

The physiologic studies and most of the clinical work of this report were supported by grants from John Wyeth & Brother.

Read in the Panel Discussion on Ulcer before the Section on Gastro-Enterology and Proctology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

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5. Woldman, E. E., and Rowland, V. C.: A New Technic for the Continuous Control of Acidity in Peptic Ulcer by the Aluminum Hydroxide Drip, Am. J. Digest. Dis. & Nutrition **2**: 733-736 (Feb.) 1936.
6. Cornell, Albert, and Hollander, Franklin: An Improved Continuous Drip Apparatus with Special Reference to the Use of Alumina Gels in the Therapy of Peptic Ulcer, Rev. Gastroenterol., to be published.

it is then closed gradually until the desired rate of flow (15 to 20 drops a minute) is obtained. At any time thereafter the flow can be stopped completely by closing the lower screw clamp (*K*); to start it again the latter need only be opened to its full extent. If difficulty is encountered in starting the flow of material, because of air trapped in the tubing (*H*) which connects the drip bulb (*G*) to the indwelling gastric tube, the air can be milked upward into the drip bulb in the usual way. An air vent (*J*) in the latter allows this air to escape. Should some of the gel settle out in the course of a treatment, it will be found that this does not interfere with the rate of flow to any considerable extent. On agitating the flask in order to redisperse the gel, one must take care not to plug the lumen of the air inlet valve with the fluid.

Two types of indwelling thin gastric tubes are in use at this time. The more common form is the semirigid Levin tube (14 to 16 French), but because this may be irritating to the patient's throat over a long period we prefer the soft latex tube, originally employed by Woldman [7] for nasogastric instillation. Most patients are hardly aware of its presence and prefer it to the stiffer Levin tube. Furthermore, the latex tube is less likely to become obstructed by the gel, mucus or food, and it permits of an easier outflow of the drip material because of its open end. The tube is passed into the stomach through the mouth, the procedure being facilitated by dipping its end into liquid petrolatum and by having the patient drink some water while swallowing it. A silkworm gut stilet, extending to within 2 inches of the end of the tube, acts as a guide in passing it and prevents its complete occlusion. The stilet usually is allowed to remain in situ after the tube is swallowed. However, after the tube is removed from the patient the stilet must be taken out and allowed to dry under tension, by means of a hemostat or some other object attached to its lower end, in order to prevent its curling.

The tube need not extend deep into the stomach but may hang just below the cardia. It has been employed with good results even in the lower part of the esophagus for esophageal and high gastric ulcers. In this position, when the drip is used in cases in which there is a bleeding ulcer, one does not have to worry about possible dislodgment of the blood clot. One may estimate the length of tube to be inserted by measuring the distance in a straight line from the xiphoid process up the midline of the chest, neck and lower jaw to the lips. The tube may be fastened to the cheek by Scotch cellulose tape or ordinary adhesive. Dentures are removed before the tube is passed, and if the patient has an anterior or lateral tooth missing the tube can rest in the vacant space. It is important that the rubber tube, which connects the drip apparatus to the intragastric tube, is long enough so that the patient can turn in bed comfortably, especially during the night.

When milk is employed instead of an alumina gel, a simpler apparatus may be used. This consists of a gravity flask or can attached to the intragastric tube through a rectal drip bulb and connecting tube. The flow is regulated simply by means of the usual Hoffman clamp, the rate being kept between 30 and 40 drops a minute. The concentration of sodium bicarbonate in the milk is usually 1 level teaspoon to a quart.

The majority of our patients have experienced little or no difficulty in swallowing and retaining the intragastric tube. A small but significant percentage, however, are apprehensive or have a hyperirritable pharynx. Because of this group it is advisable to institute the drip therapy gradually. Accordingly the tube is left in place for one hour on the first day, for two one hour periods on the second day and for the full interdigestive periods thereafter. During these first days also we have found it advisable to give a soporific (usually phenobarbital 1½ grains [0.1 Gm.]) before the patient retires. Patients with uncomplicated ulcers with mild symptoms learn how to administer the drip therapy to themselves within a few days, so that it can be used at home without the aid of a nurse. Thereafter, patients with mild symptoms may continue their usual daily occupations on the conventional intermittent ambulatory ulcer therapy and take the drip during the night for long periods (even for many months). Patients with moderate or severe symptoms require continuous bed treatment for at least three weeks. Patients with extremely severe symptoms which do not respond to this interdigestive treatment are usually placed on continuous twenty-four hour milk drip therapy without any nutrition besides the 3 quarts of milk so administered each day. Following this, the patient continues the routine described for mild symptoms. Of course, all forms of intragastric drip therapy are contraindicated by the presence of an infection of the upper respiratory tract.

THERAPEUTIC OBSERVATIONS

Since the drip therapy was instituted ten years ago some hundreds of patients have been treated by means of it. It is not our intention to describe these cases in detail here. However, 60 of these cases have been studied carefully to illustrate the fact that certain patients with severe ulcers who were refractory to the conventional ulcer treatment (i. e. Sippy) may be relieved by the administration of the drip. Many of the patients were elderly men with histories of ten to thirty-five years of chronic penetrating ulcers. They had frequent exacerbations with severe pain, usually radiating to the back, especially at night. Many had also had complications of previous episodes of gastrointestinal bleeding and were considered to be subjects for surgery. Their gastric acidity figures were high both during the day and during the night. Some had short histories, but progressive intractable pain suggesting penetration with impending perforation. These were treated with the usual Sippy therapy in the clinic or privately, without relief of symptoms, and were consequently sent into the hospital because of the refractoriness. In most cases drip therapy was not begun until all other measures in bed had failed. This was especially true of patients with nocturnal distress, to whom only the drip gave relief. Some of the patients would not accept or could not be given relief by surgery because of age, cardiovascular, pulmonary or neurologic complications or poor general condition. In these instances as well as in those with intractable pain day or night unrelieved by the usual methods of therapy drip treatment was of great value. The rapid and often complete disappearance of jejunal, gastric and esophageal ulcers, as evidenced by x-ray examination and gastroscopy, has given striking proof of the value of continuous neutralization of intragastric acidity by the drip method.

All these cases will be described elsewhere in detail, but a few of the most striking of them are presented here briefly.

7. Woldman, E. E.: A Collapsible Indwelling Nasogastric Tube, Am. J. Digest. Dis. & Nutrition **4**: 428-429 (Sept.) 1937.

REPORT OF CASES

CASE 1.—J. K., a man aged 48, had had duodenal ulcer symptoms for eight years, with four hospital admissions during that period. An operation was contraindicated because of progressive muscular dystrophy. The symptoms were refractory to a strict Sippy regimen. He was treated for three weeks by milk drip with excellent result, after which he remained well for two years.

The drip therapy probably saved this patient from a serious surgical hazard.

CASE 2.—M. A., a man aged 64, was admitted to the hospital for severe pain from a duodenal ulcer eight years ago. Strict Sippy treatment failed to relieve it. Milk drip induced a prompt remission, lasting seven years. A very severe recurrence was unrelieved by one week of Sippy treatment. Following three weeks of successful milk drip therapy he has remained well to date.

Obviously, this elderly emaciated man would have been a poor surgical risk.

CASE 3.—I. S., a man aged 59, had severe duodenal ulcer symptoms for ten years. During that time he had a massive hemorrhage. Free acidity was 100 units. There was no relief from Sippy therapy in bed. He was given milk drip for two weeks and then aluminum phosphate (amphojel-phosphate) for another week, since which time he has remained well for two years.

CASE 4.—J. W., a man aged 48 had chronic symptoms of duodenal ulcer for four years. For three months there were severe night pains unrelieved by strict Sippy therapy. Free acidity was 84 units. Milk drip relieved both day and night pains at once. This treatment was continued for five weeks, during which time he gained 16 pounds (7.3 Kg.). When seen three months later he was still symptom free.

This case illustrates the striking relief of the night pains by the milk drip.

CASE 5.—F. R., a man aged 38, for fifteen years had duodenal ulcer symptoms including a massive hemorrhage. He was admitted to the hospital for severe continuous pain. Sippy treatment afforded no relief, so a partial gastrectomy was advised but refused by the patient. He was then given the aluminum phosphate drip for three weeks with complete relief of his symptoms. He has remained well for two and a half years.

CASE 6.—J. G., a man aged 38, for ten years had typical symptoms of gastric ulcer. Free acidity was 78 units, and repeated roentgenograms revealed a large ulcer in the lesser curvature which did not change in size throughout a whole year. After one month of continuous severe pain day and night, without relief by Sippy treatment, gastroscopy revealed a possible malignant growth. Aluminum phosphate drip was then administered for three weeks. There was a complete loss of symptoms and in four weeks the large niche had disappeared. He has been observed for two years since then and has remained symptom free with negative roentgen findings.

This case illustrates the great value of drip therapy in distinguishing a benign from a malignant ulcer.

CASE 6.—S. S., a man aged 67, after twenty years of typical duodenal ulcer symptoms had a gastroenterostomy performed fifteen years ago. Severe, continuous pain during the past five months was unrelieved by strict Sippy therapy. Roentgenography revealed a penetrating jejunal ulcer the size of a 25 cent piece (24 mm.). He was placed on milk drip therapy for four weeks day and night and thereafter for another two months on night drip only. His symptoms were relieved promptly on institution of this treatment; the niche disappeared in five weeks. He gained 50 pounds (22.7 Kg.) in three months and has remained well for six years.

In view of the fact that recurrent gastrojejunal ulcer usually responds poorly to medical treatment, this is a striking example of the value of drip therapy.

CONCLUSION

We are in harmony with those who are inclined to be skeptical of any new ulcer therapy. It may be expected that the proponents of a new ulcer therapy should demonstrate (1) that it is rational, (2) that it is practical and (3) that it produces prompt and more persistent results than other forms of therapy. We believe, after ten years of experience, that the drip therapy (with milk and sodium bicarbonate or alumina gels) satisfies these criteria.

SUMMARY

1. Continuous neutralization of gastric secretion throughout the day, and especially during the night, is highly desirable in the therapy of peptic ulcer.

2. The continuous intragastric drip therapy between meals and during the night is an excellent method for the adequate control of interdigestive acidity.

3. The method, easily learned, gives the patient a means of self therapy at home for long periods during the night without interfering with his daily work.

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(To be continued)

THE MANAGEMENT OF FRACTURES INVOLVING THE PARANASAL SINUSES

JOHN J. SHEA, M.D.

MEMPHIS, TENN.

When a fracture of the facial bones extends into the paranasal sinuses, its management is similar to the surgical procedure followed in radical sinus surgery. In fact the most common complication of these fractures is sinusitis. The basis of treatment is the drainage of the injured sinus and the replacement of the bony fragments to correct the facial deformities, thus obtaining a symmetrical orbit and a satisfactory bite.

The ever increasing speed at which man now travels has multiplied the number of instances of fractures of the face, and whenever a paranasal sinus is entered the rhinologist should share the responsibility of its management. These fractures are seldom single and frequently are associated with cranial insults. The general condition of the patient determines the correct time to reduce these fractures. When the injured sinus wall forms a part of the cranial vault, the presence of cerebrospinal rhinorrhea is of importance. Manipulations should be avoided which will open intracranial avenues, except as a part of an open operation when any dural tear can be mended.

THE GENERAL CONDITION OF THE PATIENT

Every patient should be hospitalized and observed for twenty-four hours who at the time or immediately after the accident became unconscious. A consultation with a competent neurologic surgeon is advisable before extensive operations are done for the correction of these fractures. The structure of the face is loosely attached to the skull. Blows from above, below or either side will readily separate the facial bones, but blows directed from in front crush the walls of one or more of the sinuses and frequently crack the cranial vault. A desire to prevent facial blemishes should not precipitate a risky early operation. The skin of the face must be cleansed immediately; every particle of foreign material

Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

must be meticulously removed, hemorrhage controlled and the open wounds powdered with sulfanilamide. Transfusions of blood or intravenous administration of isotonic solution of sodium chloride are necessary to prevent shock in the more seriously injured. Not until the patient's general condition warrants the ordeal of an operation should corrective steps be undertaken. Recently the life of a young boy was jeopardized by the early attempt at a plastic operation on facial wounds because a thorough cranial study had been omitted. The lad remained unconscious beyond the usual postanesthetic time, and during the examination for the cause of shock a depressed fracture of the occipital bone was revealed by a roentgenogram.

MAXILLARY SINUS

When the force is exerted on the malar bone, it is displaced and separated from its articulations, and the crushing at times fractures the walls of the antrum. A

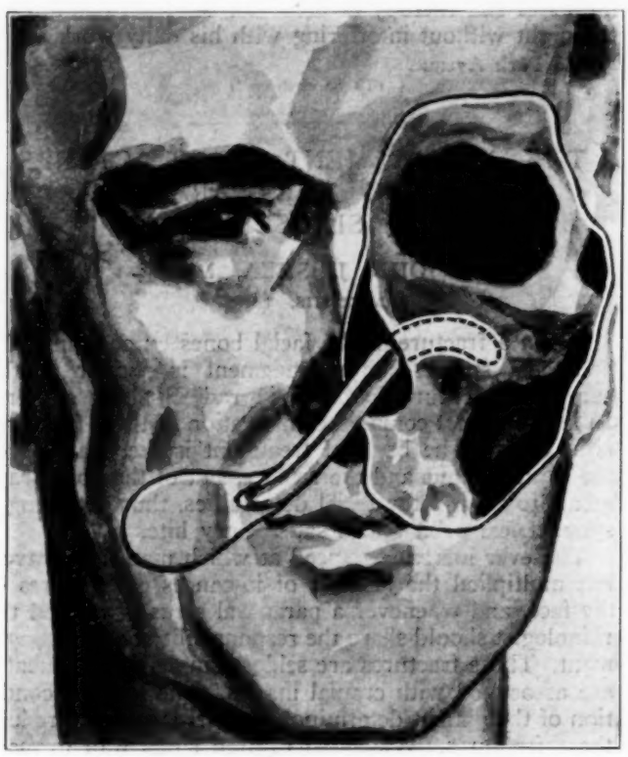

Fig. 1.—Method of reducing antral and molar fractures.

common occurrence is for the fracture to encircle the base of the malar prominence, beginning in the region of the infraorbital foramen and extending down and around through the thinner posterior antral wall. The facial appearance of such a patient is characteristic, and the deformity depends on the degree of the depression of the malar prominence and the floor of the orbit. The corresponding alveolar process sags, interfering with the bite. If the zygomatic arch is depressed, the coronoid process of the lower jaw may be hampered and at times lock the bite. A roentgenogram in a typical case will present a cloudy antrum on the injured side and an inward or outward rotation of the malar bone, with a change in the transverse diameter of the corresponding orbit. A series of planograms will reveal hidden fractures not visible in the ordinary views, and special positions will demonstrate the extent of interference of the movements of the coronoid process.

A study of the normal orbit in the routine posteroanterior view of the sinus will show a line in the outer third made by the junction of the outer orbital wall and the skull. This line bears a constant relationship to the outer rim of the orbit and may be used to determine whether or not the malar bone has been displaced. The transverse diameter of the orbit is altered in these fractures, being increased in case of outward displacement and decreased in crushing injuries in which the malar bone is rotated inwardly. This relationship and diameter are controls, available for use in determining the correct position of the parts after the resetting of the fractures.

The correction of this type of fracture may be by the traction reduction popularized by Gill,[1] who uses a forceps similar to a large towel forceps. The bone is grasped through the skin, and traction is applied with palpation as a guide. If successful, this method is safe, simple and leaves no scars. The absence of an open wound reduces the possibilities of infection. If the antral wall is badly depressed, the force exerted to replace the fragments must be intra-antral. This may be done through an intranasal antral window with a large Ritter sound. The combination of these two methods is practical, and by the insertion of a No. 14 catheter through the antral window drainage is maintained. The latter procedure is important, as the antrum is usually filled with blood which becomes foul and easily contaminated. If the deformity is extensive, I prefer an open approach to the antrum through a gingival incision, as for a radical antral operation. The fracture may be viewed and displaced fragments rotated or removed. If the parts are accessible to wiring, this is done and there is no better method of maintaining the fragments in position than by wiring. The most serious facial deformity is the result of failure to elevate and maintain into position the floor of the orbit. The sagging of the orbital floor allows the eye to descend, and the expression that the patient views in a mirror is noticeable and at times hideous. The only suicidal attempt because of facial deformities that I have experienced in my series followed the failure of reestablishing a symmetrical orbit. If the parts can be wired into position, this is preferred, for packing is seldom satisfactory.

I have used for a number of years an intra-antral balloon[1a] filled with water to maintain in position the orbital floor and at times to control severe bleeding. The balloon may remain in place from three to five days, after which the pressure is released. If the hemorrhage recurs or the fragments slip, the pressure may be reinflated after a few hours of rest.

When these fractures are bilateral the ingenuity of the surgeon is taxed. The facial appearance is characteristic—horse face—the descended upper teeth giving the appearance of a poorly fitted denture. Beautiful and practical appliances attached to simple or complicated skull caps have been designed by Kazanjian,[2] Blair,[3] Straith,[4] Adams[5] and Salinger.[6] But today the general practice is to wire the fragments by open

1. Gill, W. D.: Fractures Involving the Orbit M. World **56**: 633 (Oct.) 1938.

1a. This balloon was originated by Dr. Ferris Smith of Grand Rapids, Mich.

2. Kazanjian, V. H.: Injuries to the Face and Jaws Resulting from Automobile Accidents, Tr. Am. Acad. Ophth. **38**: 275, 1933.

3. Blair, V. P.; Brown, J. B., and Byers, L. T.: Early Local Care of Face Injuries, Surg., Gynec. & Obst. **64**: 358 (Feb., no. 2A) 1937.

4. Straith, C. L.; Management of Facial Injuries Caused by Motor Accidents, J. A. M. A. **108**: 101 (Jan. 9) 1937.

5. Adams, W. M.: Management of Extensive Fractures of the Maxilla, Tr. Soc. Plastic & Reconstructive Surg., 1940, p. 28; Open Reduction and Internal Wiring Fixation of Facial Surgery, to be published.

6. Salinger, S.: Injuries to the Nose in Children, Arch. Otolaryng. **34**: 936 (Nov.) 1941.

methods to fixed parts. In the instance of a bilateral antral fracture with free movement of the upper teeth, the accepted method of many is to attach a wire to either cuspid and bring it through the cheek and fix it to a skull cap. The direction and degree of traction will control the position of the upper teeth, and to

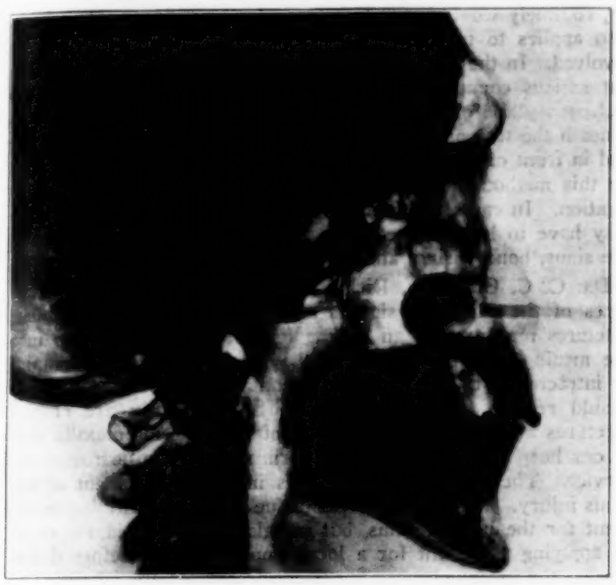

Fig. 2.—Balloon within the antrum for support of the orbital floor. The balloon was designed by Dr. Ferris Smith (Disease and Treatment of the Maxillary Sinus, J. Michigan M. Soc., April 1922, p. 12).

assure a satisfactory bite the upper and lower teeth are wired into position. Three weeks of this fixation is sufficient time for bony union unless sinusitis develops. The mouth should be kept clean to prevent infections, especially by Vincent's organisms.

A dental insult, as the loss of a tooth within the antrum, is handled after the fashion of radical sinus surgery. If the tooth or root cannot be readily extracted by suction or traction, irrigation should be avoided. It is simpler to make a window through the anterior wall and remove the foreign body with the nail foreign body forceps.

FRONTAL SINUS

The management of frontal sinus fractures depends on whether the fracture involves the inner wall. If the fracture is merely through the inferior or external wall, the deformity is corrected, usually by wiring. The external wounds are cleansed, powdered with sulfanilamide and carefully sutured, for drainage through the nasal frontal duct will suffice. The nasal membrane is treated by vasoconstrictors as during an acute frontal sinusitis to secure free drainage of the sinus by way of the frontal duct. Should this prove inadequate, the drainage will back out of the wound. This promptly becomes evident, and a small rubber drain can be inserted from the outside. When the inner cranial wall is injured, as shown by roentgen examination, a consultation with a neurologic surgeon is necessary to determine the presence of a cerebrospinal rhinorrhea. A quick test for a leak of cerebrospinal fluid is made by having the patient lie face downward on a clean linen handkerchief for ten minutes. If there is a leak there will be a dripping of a clear fluid on the handkerchief which when dried does not crinkle the linen as does the ordinary mucopurulent nasal discharge. The scientific test depends on the ability of the fluid to reduce Fehling's solution.

There are times when the risk of correcting the deformity of the frontal sinus is greater than the cosmetic benefit justifies. Recently, I saw in consultation a lad (R. S., aged 16) who while working under a car had his frontal sinus crushed in by being pinned under the axle. The cranial insult was sufficient to warrant a week's observation, and though the fracture apparently transversed the cribriform region there was no leak of cerebrospinal fluid. The extent of the orbital ecchymosis created a fear of injury to the optic nerves. This swelling was so great that any additional postoperative edema would have been disastrous to the youth's sight. After the orbital swelling receded an accompanying nasal deformity was corrected, but the depressed external wall was allowed to remain for future correction.

The dangerous period of the patient with a fracture through the cribriform plate or the posterior wall of the frontal sinus extends through several acute infections of the upper respiratory tract. Cerebrospinal meningitis of the septic type may complicate acute infections of the upper respiratory tract if a fissure is maintained by the invagination of the sinual membrane between the fragments. The immediate escape of air through similar cracks produces a spectacular roentgenogram, but the condition is rarely important.

F. J., a Negro man aged 28, had an extensive traumatic pneumocephalus brought on by blowing his nose after a head injury. The surgical correction of a fracture of the inner wall demands a thorough exposure of the fracture and a search for a tear of the dura. If the latter is encountered it must be repaired or patched, and those involving the cribriform plate are usually hopeless. The mucous membrane about the fracture should be denuded to prevent invagination, which will leave an avenue for the entrance of sinual infection into the vault. External drainage is necessary even with the protection of chemotherapy.

ETHMOID AND SPHENOID

An occasional fracture of the nasal bone will extend into the anterior ethmoid cells. The correction of the nasal deformity will suffice to reestablish the necessary

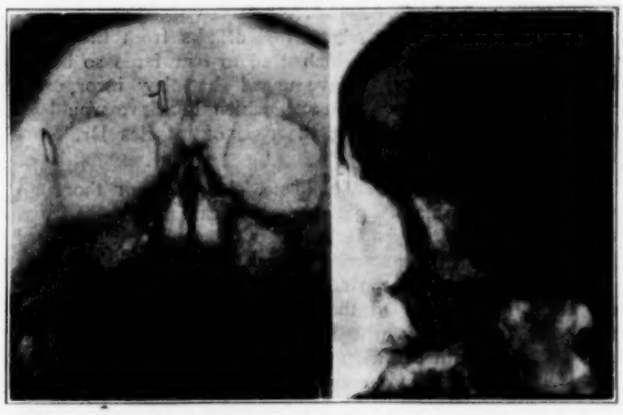

Fig. 3.—Method of wiring separations of the zygoma and frontal bone, and fractures of the anterior wall of the frontal sinus.

drainage of these cells. Occasionally a fracture of the base will extend into the sphenoid, but when it does the patient's general condition is so serious as seldom to need surgical assistance. The entrance of foreign bodies, such as bullets, pieces of shrapnel or other foreign materials, are treated according to the indi-

vidual case. It is safer at times to leave a clean fixed particle than to risk the mutilation necessary for its removal.

CONCLUSIONS

The management of fractures involving the paranasal sinuses follows the general principles of sinus surgery. The end results should be a restoration of the features, especially to obtaining symmetrical orbits, a reestablishment of good ventilation and drainage of the sinuses, and a satisfactory bite.

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ABSTRACT OF DISCUSSION

DR. CLAIRE L. STRAITH, Detroit: This problem of facial injuries is becoming of greater importance in every community. For some time I kept a record of such accidents as they came into our office and we found that there was a definite relationship between the position of the patient in the car and the type of injury he sustains. In 50 consecutive cases of facial injury there were only 8 drivers. There were 8 persons who had been riding in the rear seat. The great percentage of victims with crushing facial injuries were riding in the front seat beside the driver. We find that about 70 per cent of these victims are young girls and women who were riding in this "death seat." Typical malar bone injuries occur more frequently on the right side than on the left. Dr. Shea mentioned certain methods of elevating the depressed malar bone and I will describe a simple and satisfactory method. The area is well anesthetized with procaine hydrochloride and a small incision made through the mucous membrane above the molars. A heavy curved instrument is passed up under the malar bone; by upward traction almost any malar bone can be elevated into position. Failure to elevate the malar leaves a dropped orbit and flat cheek bone, which is quite a deformity. Dr. Shea mentioned several methods of holding crushed facial bones together. We like to use a silver wire arch bar, fastened securely to the teeth. From a position near the bicuspid teeth another wire is passed up through the cheek and the entire upper jaw suspended by fixing the upper end of the wire to coat hanger wire supports fixed in a plaster head cap. These patients can chew food and keep the mouth quite clean through treatment. For the nasal bones we use a special apparatus which elevates the bridge and produces lateral compression. In crushing injuries to the frontal bone we often drill a hole in the outer plate, screw in an ordinary wood screw, leaving the head protruding about ⅛ inch and from this an elastic band is carried up to a suspension rod on the head cast. As prophylactic propaganda we have been working with automobile companies and have persuaded them to remove the projecting gadgets and cranks from the dashboard or instrument panels, which used to tear faces so badly, and as a further precaution have urged that they incorporate a crash pad in the instrument panel, which I believe would go a long way toward minimizing the type of injuries Dr. Shea has discussed.

DR. ROBERT H. IVY, Philadelphia: The need for thorough cooperation with the neurologic surgeon in cases of severe facial injury cannot be overemphasized, and extensive manipulation of displaced bones in the presence of cranial complications may have serious results. At the same time, when serious displacements exist, particularly of the malar and superior maxillary bones, early reduction is urged whenever it can be done with safety, because, if these fractures are allowed to unite firmly in malposition, satisfactory correction later may be impossible. One frequently sees cases of grave permanent facial deformity, with loss of function of the jaws, either because the condition of the patient did not permit early reduction or because in the anxiety over the cranial injury the face deformity was entirely overlooked. For diagnosis of fractures of the upper jaw and malar bones, I rely principally on clinical signs and symptoms. To me, x-ray examination of this region is very disappointing, and I have not had much satisfaction from the planograms. In fracture of the malar bone and zygomatic arch, the most valuable x-ray information is obtained from a film made with the rays directed down through the vertex to the chin of the patient resting on the table. This permits easy comparison of the bony outlines on the two sides and also reveals opacity in the maxillary sinus. I do not think it is necessary or advisable in the ordinary fracture of the malar bone with rupture into the maxillary sinus to open into and drain the latter. In the great majority of cases of this kind the blood in the sinus takes care of itself without infection, and the deliberate opening and draining routinely would invite trouble in a certain percentage. This also applies to fractures of the maxilla in which the sinus is involved. In the ordinary depressed fracture of the malar without serious comminution I find that the easiest and least disturbing method of reduction is by a long elevator passed down beneath the temporal fascia through a small skin incision above and in front of the ear, as suggested by Gillies. After reduction by this method the bone usually stays out in position without fixation. In cases with serious crushing of the sinus walls this may have to be combined with an intraoral approach, packing the sinus, bone wiring, and so on.

DR. C. C. COLEMAN, Richmond, Va.: My interest in fractures of the paranasal sinuses arises from the fact that these fractures may provide an avenue for entrance to infection into the meninges. In fractures of the superior maxilla a cranial or intracranial injury is very common and it is the latter which should receive first consideration. So frequently are cranial fractures associated with fractures of the superior maxilla that in our hospitals such cases come primarily to the neurosurgical service. The rhinologist cooperates in the management of the sinus injury. We try to prevent undue delay in instituting treatment for the injured sinus, but we also try to avoid the error of applying treatment for a local sinus condition before determining the extent of more important associated cranial or intracranial injury. In a paper before this section in 1937 I reviewed paranasal sinus fractures and fractures of the mastoid in association with fractures of the base of the skull. In a two year series in which there were eighty-seven fractures of the base there were 15 cases of fracture of the frontal sinus, indicating that fracture of the frontal sinus is often associated with more extensive cranial injuries. Evidences of such injury are found in the unconsciousness of the patient, cerebrospinal fluid leak and occasional pneumocephalus; perhaps more often the diagnosis of cranial fracture may be made inferentially by cranial nerve palsies. The third and sixth nerves are often involved in fracture of the superior maxilla in which there has been an associated fracture of the skull. Diplopia is not an uncommon result. Radical treatment has been advocated for the fracture of the frontal sinus. There may be, as Dr. Shea has said, a cerebrospinal fluid leak which proves there is a connection between the meninges and the sinuses, but it is not always easy to determine the location of the opening in the dura. We have been conservative in the treatment of fractures through the posterior wall of the frontal sinus, even when laceration of the meninges is suspected, particularly since chemotherapy has become available. If a leak persists, however, it may be necessary to repair the opening in the dura through a small frontal flap. The necessity for operation in these cases will be rare with the judicious employment of sulfanilamide and sulfadiazine. Nearly all such leaks will cease spontaneously. When the proper time comes, and delay of ten days to two weeks may be necessary because of the patient's general condition, appropriate treatment of the fractured sinus by the rhinologist should be carried out.

DR. M. F. ARBUCKLE, St. Louis: You might be interested in what we are doing with these cases in an army camp. A sergeant came in with about half his scalp gone, with the rest of it cut up as though some one had run a knife around his head. He had a fracture through the maxilla, with a downward displacement, so that his mouth could not be shut because the teeth would not line up. He had a skull fracture, loss of an eye and fracture of a leg and an arm and of some ribs. He was unconscious and had bled a great deal. He was put to bed and nothing was done except supportive measures. After several days the fragment of the jaw slipped back into position and remained there. I have been struck with the readiness with which these fragments of jaw or nose or skull will remain in position if they are replaced without much prosthesis. The first principle of treatment is to put these soldiers to bed and do

as little as possible for the first week or ten days, aside from supportive treatment. We do have the neurologist and the internist see them, and the general surgeon, but we never think of extensive corrective measures until they are well out of the woods. The most important single thing in the way of treatment is sulfonamide therapy. We invariably saturate them to the limit with one of the sulfonamides, and it is astonishing how few complications, such as meningitis, we see. We have recently discharged a man from the hospital who came in with a fracture through the sphenoid running down into his maxilla, up through the temporal bone, back through it and up through the frontal bone. He was unconscious for eight or ten days. We kept this man quiet and supported him and gave him full doses of sulfathiazole. He was discharged for duty after a month or six weeks.

CARE OF THE AGED

MALFORD W. THEWLIS, M.D.
WAKEFIELD, R. I.

Geriatrics was not spontaneously recognized as a special branch of medicine; like pediatrics, it met with slow response. When Abraham Jacobi gave the first course in pediatrics in 1859, it was coolly received; the medical profession had to wait thirty-seven years for a textbook on diseases of infancy and childhood.

The word geriatrics was coined by Nascher [1] in 1909, and five years later he completed a textbook on diseases of old age,[2] which went through a second edition in 1916. It was then that Nascher decided to enter the Public Welfare Department of New York City and suggested that I carry on; with his help and advice, this seemed possible.

During the past few years attention has focused on geriatrics; this was logical, since life expectancy was increasing. (It has reached 65.) In two decades the age group past 60 may exceed the below 10 age group.

A survey of figures in table 1 indicates the shifts in the ratio of children and persons past 60 from 1930 to 1940. Table 2 shows a gradual decrease in the number of children and a substantial increase in the past 60 age group; this survey covers the estimated total population of the United States from 1945 to 1980.

In wartime, when the armed forces absorb a large proportion of the male youth, there is an increasing need for older men who are fit and can till the land or work in offices and factories, replacing selectees. In Germany the elderly and the children often work side by side in munitions plants, while in our country many able bodied older men are perforce idle because they have not yet been fitted into the pattern of total war. In the Ford plant, however, men of 75 are earning and producing, and room is found for persons handicapped by asthma, arterial hypertension or arrested tuberculosis, and even by such gross physical defects as blindness or by loss of limbs. Ford opened the first industrial rehabilitation clinic and paved the way for industrial groups interested in social and economic problems.

MEDICAL CARE OF THE AGED

In 1940 there were about thirteen million persons past 60 in the United States, over nine million of whom were over 65. Few among them are self supporting, and many are dependent on small pensions. Most have surrendered and believe that they can no longer pull their own weight. Now some hope that Congress will see fit to grant monthly pensions of $30 to each person past 60, but such an allowance would hardly allow for private medical care if needed. The economic plight of the aged is likely to grow worse.

The state of Washington has a plan for medical care of the elderly;[3] the state department of social security is responsible for the programs with $5,320,000 at its disposal. Hospital care, nursing and appliances are handled by each county welfare department.[4] Indiana and Illinois also have plans for the medical care of the elderly. West Virginia is experimenting on plans for old age medical treatment, and Iowa has a plan under consideration.

GERIATRICS, A SPECIAL BRANCH OF MEDICINE

Geriatrics may loom large, since social and economic factors may force the medical profession to devote as much time to the aged as to the very young. Undoubtedly there will soon be courses in geriatrics in medical schools, and medical societies will be founded to further the study of diseases of old age. There will be more hospitals and clinics devoted to the care of the aged. Physicians will focus on preventive geriatrics (gerontology) [5] dealing with senescence (normal old age) and on senility (abnormal old age).[6]

THE APPROACH TO GERIATRICS

A physician genuinely interested in geriatrics does not necessarily work in hospitals and clinics. Some physicians in rural areas are doing scientific work in their own offices which they use as clinics and laboratories. Their necropsies are often painstakingly done and as accurate as those made in hospitals. Necropsies are important contributions to the advancement of geriatrics. Much is learned at the bedside. For every seriously ill old person who consults a physician there are a hundred with simple ailments causing discomfort which may precede actual disease. Physicians are often baffled by simple ailments, and surgeons are disconcerted when forced to treat ambulatory patients without hospitalization, but they must realize that the aged are seldom willing to go to hospitals; they cling to familiar surroundings and to their relatives, and there is no reason why many of them should not remain at home when ill. Unless they are mentally unsound or destitute, one cannot hospitalize against their will. One must be prepared for blood transfusions and intravenous solutions in the patient's home if hospitalization is objected to. A small portable laboratory outfit and portable x-ray apparatus often will make a scientific study possible without hospitalization. When dealing with elderly patients, Rowntree preferred surgical interventions at home whenever feasible.[7]

A physician interested in geriatrics might have a clinic in his office and give the underprivileged the benefit of low fees, thus keeping them off the charity list. Old people often feel that they get more attention in a physician's private office than in an institution. If they are ill at home, the geriatrician could visit them for a moderate fee. If physicians adjust their fees to the circumstances of the patient, they will be amply repaid in knowledge gained. Carefully taken case histories and cross indexes are constructive.

Read before the Section on Miscellaneous Topics, Sessions on General Practice, at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

1. Nascher, I. L.: New York M. J. **90:** 358, 1909.
2. Nascher, I. L.: Geriatrics, Philadelphia, P. Blakiston's Sons & Co., 1914; ed. 2, 1916.
3. Medical Care **1:** 174, 1941.
4. Medical Care **2:** 74, 1942.
5. Stieglitz, E. J.: Potentialities of Preventive Geriatrics, New England J. Med. **225:** 247, 1941.
6. Pepper, O. H. P.: Notes in the Field of Geriatrics, M. Clin. North America **120:** 127, 1936.
7. Rowntree, C.: Operative Surgery of the Aged, Clin. J. **60:** 257, 1931.

A small town general practitioner is in a favored position because continuous clinical studies are possible. City practice is often transient and seldom enables one to watch families as closely as it is possible in a smaller community where heredity and environmental factors are known; the influences of those factors on several generations are often obvious.

TABLE 1.—*United States Population, 1940-1930, in Childhood and Old Age*

Age	1940	1930
0-5	21,324	24,052
60 and over	13,670	10,385

Source, United States Bureau of Census. Figures are rounded to the nearest thousand; 1940 figures estimated on a preliminary tabulation of 4 per cent cross section of the latest census returns.

TABLE 2.—*Estimated United States Population, 1945-1980*

Age	1945	1950	1955	1960	1965	1970	1975	1980
0-9	21,446	21,603	21,308	20,687	20,121	19,748	19,492	19,249
60 and over	15,193	17,220	19,667	21,584	23,663	26,193	28,826	31,218

Figures of age groups are rounded to the nearest thousand and are adapted from those of the National Resources Committee.

No specialty in medicine can be approached as easily as geriatrics. But, to be successful, a geriatrician must be genuinely interested in the elderly and willing to study his patients thoroughly. He must not overlook pathologic changes in the aged and must resist the temptation to restore the old to a state normal to maturity.[8] They must function at their own level. An understanding of the senescent organism is necessary to treat elderly patients with some degree of success. Overenthusiastic treatment must be avoided. The usual result of overtreatment is a high mortality rate.[6]

PRECLINICAL MEDICINE AND GERIATRICS

Preclinical medicine is a logical approach to the prevention of diseases of old age. It deals with pathologic processes likely to occur, such as peptic ulcer, diabetes mellitus, pernicious anemia, arterial hypertension and arterial degeneration. The accompanying chart shows the most common causes of death in the various age groups past 50 and proves the necessity of focusing on these diseases.

Preclinical medicine includes a study of premature degenerative changes. If these can be determined, it may become possible to eliminate influences which hasten disintegration. The goal of preclinical medicine is the study and interpretation of preclinical states, disease soils, constitutional factors, conditioning periods and disease tendencies.[9]

The principles of preclinical medicine clearly apply to persons in their late forties and early fifties. Preclinical studies should be done early enough to allow timely intervention, since late intervention is seldom successful. Preclinical therapy can attack the disease "soil" long before the symptom stage is reached.

The process of deterioration which is called aging is hastened or retarded by two dominant factors, heredity and environment. From the preclinical standpoint they are certainly the most significant.

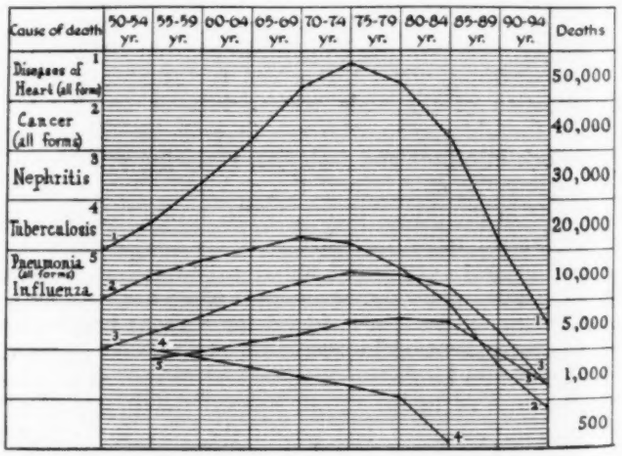
A diagnosis of specific vulnerability to disease is based on a study of the patient as a whole and includes a study not only of the hereditary background but of constitutional types, racial factors, intellectual equipment, racial adjustment, reaction to climate, occupation and past diseases. Careful history taking is as essential and necessary as a thorough physical examination.

Preclinical medicine is closely linked with geriatrics and goes a step further than preventive medicine, which deals with the prevention of communicable diseases. As stated before, preclinical medicine deals with predisease states—the "soil" on which disease develops. Since many of these disease "soils" are not detected until later in life and are a result of hereditary and environmental influences, they often appear in the geriatric period of life. Many persons do not consult a physician for a check-up until they reach the age of 50. Thus the geriatrician becomes a preclinician.

PREVENTIVE GERIATRICS

The actual prevention of diseases of old age while in their incipience is covered by preventive geriatrics. Industrial medicine[5] is helpful, and of course the general practitioner has rare opportunities to prevent disease. The early treatment of precancerous dermatoses seldom fails. The person with diabetes is told how to avoid complications. Warning against such common hazards as slippery floors, sliding rugs and walking on slippery pavements may prevent fractures. Adequate liver therapy for pernicious anemia may halt degenerative changes in the spinal cord. Avoidance of sudden strain (lifting heavy objects, shoveling snow, running for a train) may postpone an attack of coronary thrombosis. Early diagnosis of gastric lesions by gastrophotography and gastroscopy is important. Gastrophotography is an effective office procedure which is not too exhausting to the aged patient.

Many disagreeable conditions may be avoided through a timely removal of foci of infection. Pneumonia may be prevented by the use of sulfadiazine for severe infections of the upper respiratory tract. Chemotherapy may save elderly persons who are suffering from genitourinary and other infections. Tuberculosis is not rare in old age, and its prevention is necessary in senescence as in childhood. General hygienic measures, mental hygiene and proper nutrition are also important in advancing years. These are only a few of the countless preventive measures which the practitioner may apply in the course of ordinary medical practice.



Incidence of common causes of death in persons past 50. Figures taken from Vital Statistics, Special Reports **14**: 2, 1941.

SURGERY OF THE AGED

Prolapsus uteri which is not causing much discomfort at the age of 50, if untreated, may incapacitate the patient at the age of 70. The person who has gallblad-

8. Thewlis, Malford W.: The Care of the Aged (Geriatrics), ed. 4, St. Louis, C. V. Mosby Company, 1942.
9. Thewlis, Malford W.: Preclinical Medicine, Baltimore, Williams & Wilkins Company, 1939.

der disease at the age of 50 and postpones surgical intervention is unwise. Sooner or later these diseases cause discomfort and in more advanced life an operation may frighten a weakened patient or nervous relatives. Corrections in early senescence are advisable.

A more optimistic attitude toward surgical intervention in the aged is to be hoped for. Records show that major operations on persons ranging in ages from 80 to 100 often have been successful. One should not hesitate to operate on old persons if there is a chance of prolonging life and restoring comfort. Many elderly patients suffer exceedingly from gallstones, prolapsus uteri, brain tumor, cancer, hypertrophy of the prostate gland and a number of other diseases. Should they be denied the relief surgery offers? It is interesting to watch elderly patients whose every organ seems diseased undergo a major operation and live usefully several years after.

Geriatrician and surgeon should, of course, cooperate. The geriatrician should study hepatic and renal functions in all patients. Clinical densimetry will help to determine whether subclinical edema is present. Blood transfusions may be required, but if the patient is carefully conditioned before the operation they may not be necessary. Usually, but not always, an elderly patient does better if he is out of bed on the second or third day following operation. Careful study should be given to nutrition and a normal diet resumed as soon as possible. A geriatric nurse should be in attendance.

An experienced surgeon endowed with some degree of healthy optimism based on justified self confidence is most successful with the aged. He understands the senescent organism as well as preoperative and postoperative requirements; he is "in and out" with as little tissue damage as possible, and he selects an anesthetist who has had experience in geriatrics.

CONCLUSIONS

It is necessary to prevent premature deterioration and to give the aged intelligent medical care. They should function at their own level; if the geriatrician bears this in mind, he will not find it difficult to treat them. Early detection of abnormalities and their correction, whenever possible, and timely surgical intervention, when indicated, have prolonged useful lives. Old people, when healthy, can serve as substitutes for younger men serving in the armed forces. Physicians who give them proper medical care are indirectly contributing to the war effort.

25 Mechanic Street.

ABSTRACT OF DISCUSSION

DR. LUCIEN STARK, Norfolk, Neb.: Geriatrics will soon become an important phase of the practice of medicine. With conditions as they are, we shall care for the children and the aged: the rest of our population will be cared for by that branch of the armed services in which they are serving. In the treatment of older people, our problem is not to overtreat them. One cannot hope to reconstruct or rehabilitate the aging blood vessels, secretory mechanisms and musculature so that they will be better than good. It cannot be done. One cannot restore the lumen or the elasticity of the blood vessels. The secretory mechanisms are failing because of poor blood supply and damage from the untoward incidents of life. Musculature is failing because of natural wear and tear as well as from defective nutrition, and this musculature cannot be rebuilt. Successful treatment of the aged must be based on getting them to adapt themselves to the condition of their blood vessels, musculature and secretory mechanisms rather than making these things conform to the ideas of the patient. Excessive use of coffee and tobacco are not the best thing for blood vessels; but to take coffee and tobacco away from some old persons who have used them for a long time makes them think they are being punished rather than being treated. They are far better off to continue their use and to take enough alcoholics to dilate their vessels and at the same time give them a little stimulation. Alcohol not only is a stimulant to these people but also acts as a narcotic and serves to make life a little more bearable and enjoyable for those who are on the downhill side. If they are deficient in hydrochloric acid, give them enough acid to make up the deficit so that their proteins will be properly split and they can eat whatever protein they want without a gastric upset. If they have insufficient bile to handle fats properly there are many excellent preparations of bile which they can take so that there will be no resulting fatty indigestion to make them miserable. The nutrition and metabolism of these older people must be based on replacement therapy in order that they can be comfortable and enjoy their declining years. The lengthening of the span of life, the taking away of our young and middle aged group of people, make it necessary that we learn to care for the aged in the most sensible and scientific manner.

DR. WINGATE M. JOHNSON, Winston-Salem, N. C.: Years ago an elderly friend made an observation that one grows older not by an inclined plane but by steps. I have found Dr. Thewlis's book on the care of the aged fascinating; as he pointed out, the proportion of elderly people in the general population is increasing yearly. The specialty of geriatrics may ultimately equal, if not surpass, pediatrics in importance. Indeed, the declining birth rate caused the American Academy of Pediatrics in June 1938 to adopt resolutions in favor of extending the limit of that specialty from birth almost to the voting age. If this century's downward trend in the birth rate continues, a future meeting of the academy may vote to take the second childhood within its province. Certainly there are many problems common to the two extremes of life. A few points in Dr. Thewlis's paper I should like to emphasize. The first is the danger of overtreatment. The observation by Hippocrates that "all great changes, either one way or another, are hurtful" applies particularly to older people. I do not agree with Dr. Thewlis that "the aged are seldom willing to go to hospitals." A great many find a visit to the hospital something of an adventure; and if the nurses and resident staff are tactful in dealing with them, often they will look back with pleasure to their hospital experience. I agree with Dr. Thewlis's views on surgery for older patients. Often a comparatively simple operation gives such patients a new lease on life; and it is quite true that they stand operations surprisingly well. Many a man has had the last fourth or third of his life made miserable by having to wear a truss for a simple hernia that could have been repaired in half an hour. Many a woman has endured the misery of a constant backache and sometimes the embarrassment of a constant dribbling of urine that might have been relieved by a perineal repair. I should like to offer the suggestion that we encourage these patients to develop wide interests and to cultivate hobbies in the presenile period.

DR. GEORGE M. LEVITAS, Westwood, N. J.: The physician should recognize his responsibility to the older patients. In my state and particularly in my county a number of convalescent homes have been established in recent years for the care of the aged. This has followed a demand for accommodations for those who cannot find the necessary attention at home. While the county home is provided with suitable laboratory facilities and social opportunities, the convalescent homes privately managed are nothing more than wards for old people. The old folks sit around, smoke excessively, knit or do anything they can find to "kill time." There is no organization for pleasure or physical effort. Because we have done everything to make people live longer we should make their lives pleasant, comfortable and worth while. We should, as a profession, provoke in our lawmakers an effort to effect such a program. All over our state there are keep well stations for the young, who probably would do just as well without official interference; but nothing is done for the older people. Recently an aged woman fell and fractured her femur. At the hospital the orthopedist applied a cast to the pelvis and to both the fractured and well lower extremities. After six weeks of immobilization the cast was removed; it was observed that there

was complete union and good muscle tone in the injured leg but that the uninjured was completely atrophied. There was a foot drop, and the patient was able to move about best with the injured member. The fracture had provoked an optimum supply of blood to meet the needs of repair at the expense of the normal leg, which suffered a minimum of blood supply. This may establish the fact that old people will develop more or less atrophy and dysfunction and will die much earlier without obtaining any benefit from our medical attention unless we provide systematic and scientifically controlled entertainment and exercise.

DR. M. W. THEWLIS, Wakefield, R. I.: I am glad Dr. Johnson brought up the question of hospitalization. It is better if aged patients can be sent to hospitals, but there are a great many who won't go. The general practitioner must be prepared for those patients who refuse hospitalization. Regarding the future of geriatrics, the estimated number of children from infancy to 9 in 1945 is 21,446,000, compared with 15,193,000 persons 60 and over. The estimated figures for 1960 are 20,680,000 up to the age of 9 and 21,584,000 persons who are 60 and over; for 1980 the figures are 19,249,000 from infancy to 9 and 31,218,000 for persons who are 60 and over.

CANCER CONTROL IN WESTCHESTER

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This paper presents a discussion of an actual practice directed toward the control of cancer in Westchester County, N. Y., population, half a million, an experiment the virtues of which have created a considerable interest abroad while developing within the county great comfort to members of families of low income and help to doctors in the care of patients usually encountered in distressing circumstances.

In 1928 Dr. Howard Canning Taylor Sr., then president of the American Society for the Control of Cancer, conceived the idea of extending the activities of that organization beyond cities possessing machinery for cancer education to sections of the country having no such equipment, hoping to develop a more optimistic attitude toward the outcome of the cancer diseases and to spread to adult populations such educational aids as might lead toward a recognition of the threat of cancer on the appearance of early symptoms. With this object in view he persuaded us to attempt such an experiment.

In many ways, Westchester was an admirable proving ground. The intelligence of its people was better than average, and its per capita wealth at that time was high. It contained several cities of more than forty thousand inhabitants and supported one thousand doctors and fifteen hospitals. Its southern boundary was New York City with all that such a relationship signified in advantages of consultation and help. The term "cancer," though usually discreetly hidden by the phrase "a long illness," was more freely used than in many other communities.

It might interest one to speculate on one's course of procedure if presented with a problem such as we found facing us. Between the Hudson River and Long Island Sound, in our territory, over five hundred people died each year of cancer and approximately two thousand were continuously ill of the cancer diseases. We were to learn that of this two thousand about five hundred were members of low income or completely dependent families. A quick survey showed that no agencies, no hospitals, no clinics were giving special consideration to cancer patients, nor were accommodations available for their care. No recognition was devoted exclusively to the cancer problem except by a group of Catholic Sisters who, at Rosary Hill in Hawthorne, carried on an establishment where patients in the terminal stage might die in peace.

Believing that the cancer problem demanded the consideration primarily of medical men, an exclusively medical committee except in the posts of treasurer, attorney and executive secretary was formed. From hospital staffs in various parts of the county, twenty men were invited to constitute this group, which arrived at the following general conclusions:

Cancer is not an utterly hopeless disease, because 40 per cent of all cases are vulnerable to early attack, provided the forces of cancer cell destruction are intelligently selected and directed.

Forty per cent of the one hundred and fifty thousand who die annually from cancer in the United States, sixty thousand, represents a human fraction worthy of medicine's greatest effort.

Medical schools having failed to place adequate accent on early cancer diagnosis, graduates frequently are insufficiently trained to recognize the disease in its curable stages and are careless about insisting on immediate expert care. Lay groups are ignorant of the import of early signs and symptoms which should be part of their common knowledge.

It is possible within units of half a million to develop ways and means to stimulate doctors, to educate laymen and to arrange that the necessary facilities and the tools of reconstruction be offered to both. Without facilities for adequate clinical care, there is no value in education.

Success for any cancer control effort may not be claimed by any organization until, progressively over the years, the cancer mortality curves are bent downward in populations receiving adequate cancer service.

Of conclusions such as these, a springboard was constructed. Out of these the Westchester plan was evolved. A first step was to establish headquarters on a busy thoroughfare in the more congested part of the county, for location is as important to cancer offices as is Fifth Avenue to Tiffany. We have learned the desirability of dignified publicity so that the term "cancer" shall be as familiar as that of other common threats to life; that exhibits of radium therapy equipment, of photographs, of x-ray material and samples of cancer literature must be displayed so as to become well known to people who are to be approached for support of control work.

In the home of the first county cancer committee to be launched in the United States, with an executive secretary and an assistant, we spread our plan on paper and started a fifty year experiment, embracing primarily the following steps:

1. To persuade the members of the Westchester County Medical Society to consider us an agency for the general good, to use us for the purpose of cancer consultation and assistance, and to cooperate with us in an effort to establish a high grade of cancer care for low income and indigent cancer patients throughout the county.

Read on April 8, 1942 before the Philadelphia County Medical Society, Philadelphia.

2. To assist hospital superintendents, boards of governors and staffs to develop cancer services to meet the requirements of the American College of Surgeons.

3. To advertise clinics to doctors and, through the daily papers, to the public, and to supply such clinics with efficient secretarial and adequate professional nursing service, uniform records in duplicate and their patients with follow-up care.

4. To seek to reach at frequent intervals as many men and women as possible by informal talks and formal lectures in clubs, fraternal organizations, factories and churches by car cards, newspaper advertising, short articles and dissemination of available literature, and by intensive campaigns against cancer in special organs of the body.

5. To supply hospitals supporting cancer clinics with current literature relating to cancer and with important basic textbooks; to arrange lectures for all doctors on all known phases of cancer, including instructions covering various agencies available for its control.

6. To purchase radium and establish a radium bank, with equipment necessary for the use of this element under direction of clinic chiefs, preparations ordered through them to be assembled, delivered and collected, and accurate records kept of these transactions.

7. To arrange for the transportation of patients when necessary.

8. To develop a card index and mailing list for use in annual drives for money to support the developing program.

As the years passed, we received an astonishing support. An increasing number of doctors throughout the county gave the committee a chance to help in difficult cancer problems, and the cancer office became a clearing house for the consideration of complexities developing about the disease.

As departments of general science, particularly of biology, developed with increasing speed in our schools, it was realized that a vast field lay virgin, full of promise, all about us: that boys and girls, 14 or 15 years of age, offered a unique opportunity for the dissemination of cancer information.

Pioneering in this field, we introduced cancer teaching, developing an outline for a textbook, "Youth Looks at Cancer," for distribution to students in departments of biology. This was inaugurated in the Westchester cancer office, assisted by the department of biology in the Scarsdale High School, and Helen R. Steward, M.A., Teachers College, New York City, was engaged to elaborate and correlate our information in textbook form. On its jacket are illustrations of student groups at Sarah Lawrence College and the medical department at Yale. Reactions to this book indicated great eagerness for cancer information.

Limited to departments of biology, "Youth Looks at Cancer" failed to reach a sufficient number of students. To correct this defect, we introduced "Detectives Wanted," an interesting and very inexpensive script which we plan to place annually in every school, on the desk of every boy and girl in their fourteenth or fifteenth year. When it is realized that there are two million children of that age in the schools of the country, with a potential four million parents or guardians, it is easy to see how extensive and important such an approach may become. Its estimated cost for the United States would be twenty thousand dollars, approximately four hundred dollars annually per state.

With an office force organized so that all business pertaining to committee activities might receive prompt attention, the Westchester Cancer Committe in 1929 launched its initial campaign for funds by mail. Forty-three thousand persons were solicited. Ten per cent responded, and we received $17,442, an average contribution of $4.13. In 1941, 77,132 persons were solicited, and 13,887 people contributed $29,784, an average of $2.14 per person.

In addition to the educational, publicity and financial program, it became necessary to develop a medium for the actual care of patients. Various hospital groups and local medical societies were visited and the program was explained. This resulted in the early establishment of three clinics. Now there are eight, six of which have been approved by the American College of Surgeons.

When we began, there was not a sufficient number of surgeons trained in cancer diagnosis and treatment to man the clinics, but in each group one or two had a special interest in malignant disease, others were anxious to learn, and through the years associates have become reasonably expert.

Each clinic group consists of four or more doctors: a pathologist, a radiologist versed in roentgen and radium therapy, an otolaryngologist and a general surgeon. In most instances intern and resident staffs assist in history taking, securing biopsies and examining patients. Committee secretaries record essential data obtained by historians from each patient at every visit and forward dictated letters to physicians who have referred patients. Copies of such data are filed in the central office, where uniform records are kept of every patient attending the various clinics of the county. Committee nurses assist patients and doctors during the clinic sessions and visit patients at home when so directed, giving personal attention to and instruction for home care, arrange for the return of patients and make essential follow-up calls. Nurses own and drive motor cars, the running costs of which are assumed by the committee.

Each new case becomes the subject of consultation by the clinic group and a plan for treatment is devised. Return cases are carefully reviewed and accurate progress notes entered on records. Members of each group learn to work harmoniously, differences of opinion are respected and expressed ideas are given an opportunity for evaluation.

At intervals, all records pertaining to a certain organic system are reviewed, treatment and results are correlated, errors are discovered and corrected, and from the information obtained comparisons are made with others' results so that a constant improvement in dealing with the disease is attained.

In 1936 the committee conducted a breast cancer campaign, part of which consisted in sending each doctor in the county pertinent facts regarding the disease and calling the attention of the public to breast inspection by a distribution of one hundred thousand pamphlets, by letters and newspaper articles, covering certain features which a lay person could readily understand. As a result, there occurred in the clinics and in private offices a decided increase in the number of women who presented themselves for breast examination. Such educational work is frequently repeated, so that now few women hide a lump in the breast until treatment has become hopeless. Malignant disease in other organs of

the body has been publicized, always resulting in a notable increase in clinic visits.

Three hundred and eight mg. of radium owned by the committee is available without charge, and roentgen therapy in many instances is paid for from committee funds. The clinics provide a consultation service for physicians practicing in sections of the county where adequate facilities for cancer diagnosis are not available, and patients formerly regarded as in a hopeless condition are now given a chance for a longer and more agreeable life.

There is still too long an elapsed period from the time symptoms first appear until the patient seeks aid, but patients with early cancer are now applying for advice more frequently, a factor of paramount importance in securing a successful outcome. If any measure of cancer control is to be gained, the life of the cancer shortened and the life of the patient extended, we must bend all our efforts to persuade physicians and the public to be on the alert for the first signs and symptoms of malignant disease in all parts of the body.

Having passed successfully through a depression and now strong in the midst of war, we know that the work of the committee is firmly established. Through ethical practice in the office and the clinics we enjoy the interest of the public, and our place in the esteem of doctors is indicated by the yearly endorsement of committee services by the Westchester County Medical Society. What we have done can be accomplished by many other groups of medical men, and thus the poor of each state relieved of a great mental, physical and financial burden.

Looking back to 1929, it is evident that Dr. Taylor's desire was for a greater dissemination of cancer information. It is fair to say that his idea was confined to an increase in adult education and that the American Society in 1928 had no thought of being involved in the clinical care of cancer patients and had never conceived the idea of including school children in any publicity concerning cancer or of introducing formal cancer teaching in departments of biology and general science in any school curriculum. These factors were born of the Westchester experiment.

89 Pondfield Road.

The Rising Generation in Medicine.—At no time is it more important to instill into the student mind those high principles which for so many years have guided the practice of medicine. There is, I fear, a growing tendency among students today to regard medicine purely from a materialistic standpoint. Even before the war many of the newly qualified, anxious to convert their acquired knowledge into terms of solid cash, rushed into contract or panel practice without holding any hospital house appointment whatsoever. Since the war the shortage of medical personnel has led to a greater demand for the newly qualified student, and the high fees now paid to temporary locums and assistants cannot but be harmful in the future when the period of present cheap money is past. Another present day aspect of medical student life which personally I much regret is the innovation of political student societies. It is a tradition of British medicine, as it is of the British Red Cross, that our service is independent of political creed. The doctor should be entirely impervious to political influences. His concern is with the great essentials of birth, life and death, which transcend all other considerations, and he should resolutely turn his back to the rival claims of political factions both at home and abroad. —Whitehouse, Sir Beckwith (president of the British Medical Association), The British Tradition of the New Outlook, *Brit. M. J.* **2**:357 (Sept. 26) 1942.

Clinical Notes, Suggestions and New Instruments

THROMBOPENIC PURPURA COMPLICATING PREGNANCY

TREATMENT BY SPLENECTOMY RESULTING IN CLINICAL CURE AND FOLLOWED BY THREE FULL TERM PREGNANCIES

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Thrombopenic purpura complicating pregnancy is a rare condition and carries a high mortality. Rushmore [1] in 1925 made a thorough review of the literature on the subject and collected a total of 47 cases. A report by DeSaussire and Townsend [2] disclosed 55 cases up to 1935, and of the total of 52 cases in which the final results were known there was a mortality of 55.7 per cent.

Sanford, Leslie and Crane [3] in their review of the literature listed 11 cases in which the fetus also showed a purpura similar to the mother's, and they added a case of their own. Rushmore quoted a case of Dohrn's in which the fetus exhibited petechiae similar to the mother's, one of Greenhill's in 1923 in which there was a recurrence of purpura in a succeeding pregnancy and one of Vignes and Strassnie's in 1921 in which the purpura recurred in three successive gestations during a period of ten years.

In 1916, at the suggestion of Kaznelson, Professor Schloffer of Prague performed the first splenectomy for thrombopenic purpura.

Our case parallels the characteristic symptoms of purpura of the platelet-free type, as enumerated by Mosher.[4]

REPORT OF CASE

History.—Mrs. M. N., since the age of 14 had a tendency to bruise easily, the slightest trauma to the skin being followed by ecchymosis. There had also been prolonged bleeding following small cuts of the skin. She had numerous attacks of epistaxis, especially during the winter, at which time they were related to attacks of choryza. After the extraction of teeth she always had severe hemorrhages that had to be controlled by packings. After brushing her teeth she would have some bleeding from the gums. Her menstruations as a rule were of a week's duration and the amount was excessive.

There was no history of allergic, familial or hereditary disease. She had measles, chickenpox, pneumonia at the age of 4 years and influenza in 1918. She had never had rheumatic fever, tonsillitis or chorea.

On Dec. 11, 1926 she was admitted to the Perth Amboy General Hospital in the medical service for severe epistaxis. She remained in the hospital nineteen days.

On Feb. 13, 1931 she was again admitted to the hospital with the following history: She had been married a year and a half. She had no children. Her last menstrual period had been on December 20 and had resumed on January 31 and had not stopped for the past twelve days. On admission she was in an almost exsanguinated condition with considerable air hunger. Her pulse was 140 and of poor quality. Examination of the blood revealed: 1,580,000 erythrocytes, 11 per cent hemoglobin (Sahli), 5,400 leukocytes, 60 per cent polymorphonuclears and 40 per cent lymphocytes. The erythrocytes showed polychromatophilia, poikilocytosis and normoblasts. Examination of the urine was essentially negative. She was given a direct blood transfusion of 500 cc. of blood. There was a definite improvement but she continued to have slight bleeding. Daily blood examinations revealed a slow rise in the red blood cell count and in the hemoglobin content. On February 26, thirteen days after admission, the red blood cell count was 1,890,000 and the hemoglobin 28 per cent (Sahli). The following day another blood transfusion of 500 cc. of blood was given and the following day the red blood cell count was 2,610,000 and the hemoglobin was up to 39 per cent.

1. Rushmore, S.: Purpura Complicating Pregnancy, Am. J. Obst. **10**: 553, 1925.
2. DeSaussire, H. W., and Towsend, E. W.: Purpura Hemorrhagica in Pregnancy, Am. J. Obst. **29**: 597, 1935.
3. Sanford, H. H.; Leslie, Eleanor I., and Crane, Marian M.: Congenital Thrombocytopenia, Am. J. Dis. Child. **51**: 1114 (May) 1936.
4. Mosher, G. C.: The Complication of Purpura with Gestation, Surg., Gynec. & Obst. **36**: 502 (April) 1923.

On March 3 the coagulation time was four minutes and the bleeding time was eight minutes, the platelet count was 45,000, the red blood cell count was 3,200,000 and the hemoglobin was 50 per cent. There was a gradual rise in the platelet count, and on March 16 the count was 50,000 while the red blood cell count arose to 3,300,000 and the hemoglobin level to 48 per cent. During her stay in the hospital and twenty-seven days after admission she had a profuse epistaxis that required repeated nasal packings to control. She left the hospital after five weeks and at the time of her discharge the red blood cell count was 3,410,000 and the hemoglobin 50 per cent.

Two years later, according to her history, she had a miscarriage with some hemorrhage that was controlled by uterine packing. She was treated at home.

On Aug. 2, 1935 at the age of 25 she was again admitted to the hospital in the obstetric service at full term with a breech presentation. On admission there was slight edema of the fingers and arms, slight bleeding from the gum margins, petechial hemorrhages and larger ecchymotic areas in the skin. The systolic blood pressure was 135 and the diastolic pressure was 100 mm. of mercury; the pulse was 72 and the temperature was 99 F. Fetal heart sounds were present in the right lower quadrant. The laboratory findings were: erythrocytes 5,590,000, leukocytes 19,400, hemoglobin 95 per cent, platelets 50,000. The Wassermann reaction was negative. Coagulation time was three and one-half minutes, bleeding time eight minutes, blood nonprotein nitrogen 33 mg. and blood sugar 115 mg. The tourniquet test was positive.

During the second stage of labor she complained of numbness of the fingers and toes and suddenly she went into a comatose state with the pulse barely perceptible, followed by eclamptic twitchings of the arms and legs. The fetus was rapidly delivered without any laceration or postpartum hemorrhage. There were no convulsions. She was given intravenously 1,000 cc. of 10 per cent dextrose in isotonic solution of sodium chloride and her immediate postpartum condition improved.

Gross Examination of the Fetus.—The fetus was a well formed normally proportioned stillborn male baby of approximately 7 pounds (3,175 Gm.); generalized petechial hemorrhages of the skin and a large scrotal hemorrhage were present. In the brain there were subarachnoid hemorrhages chiefly at the base; the appearance was normal on cut section and the ventricles were clear. In the chest the pleural cavities were clear; the lungs had petechial subpleural hemorrhages and on cut section the lungs presented a normal appearance. In the heart were petechial subpericardial hemorrhages. The thymus showed surface hemorrhages. The abdomen showed no free fluid. The liver was a deep purple and uniform in appearance on cut section. The spleen was similar to the liver. The stomach and intestine were normal. The kidneys were normal in size and shape but on cut section revealed hemorrhages in the renal pelves. The adrenals and bladder were normal. The testicles were hemorrhagic. Sections for microscopic study, unfortunately, were lost during the remodeling of the laboratory, and reports are therefore not available.

Postpartum Course.—The seizure that the mother had apparently was a complication of the purpura and not eclampsia. A day after delivery the mother's purpura increased and there was a slight swelling of the hands. The blood pressure was 135 mm. of mercury systolic and 80 mm. diastolic. Her general condition seemed good. Three days after delivery the lochia was normal. There was severe ecchymosis of the vaginal walls and around the urethra. Examination of the blood at this time showed erythrocytes 4,480,000, leukocytes 18,000, hemoglobin 59 per cent, coagulation time three and one-half minutes and the bleeding time eight minutes. A catheterized specimen of urine was amber, clear, acid, with a specific gravity of 1.017, albumin 3 plus, no acetone, few granular casts, no pus cells and many blood cells. Her antepartum urines had been normal. Six days post partum the purpuric spots showed evidence of fading. Nine days after delivery her general condition was good and she left the hospital.

On August 21, nineteen days post partum and ten days after her discharge from the hospital, she was readmitted to the hospital. On admission she was pale and gave a history of profuse vaginal bleeding for the past twelve or eighteen hours. The temperature was 100.4 F. and the pulse rate 120. There was a functional (ischemic) murmur at the apex of the heart which was not transmitted. Examination of the blood on admission showed erythrocytes 3,880,000, leukocytes 11,200, hemoglobin 65 per cent, polymorphonuclears 70 per cent, lymphocytes 29 per cent, eosinophils 1 per cent and platelets 25,000; the red cells showed polychromatophilia and some basal stippling; the bleeding time was ten minutes and the coagulation time was three and one-half minutes with a nonretractile clot. The urine was clear in appearance and alkaline, with a specific gravity of 1.005, albumin 2 plus, no casts, no sugar or acetone, few pus cells and no blood.

She was given repeated direct transfusions of 500 cc. of blood. She continued to have uterine bleeding, and repeated uterine packings did not control the bleeding. Repeated blood counts were done and they showed a gradual drop in the red cell count to 2,320,000, and the hemoglobin dropped to 40 per cent. The beneficial effect of the blood transfusions were short lived; the day after a transfusion the red blood cell count would rise by 100,000 but the hemoglobin content did not rise or would be lower than before the transfusion, and evidently this was due to the continuous oozing of blood from the uterus. On admission the platelet count was 25,000. The following day it dropped to 10,000 and remained around 10,000 until she was operated on. On both arms in the areas in which she was given direct blood transfusions, slight oozing of blood continued even from the point in the first area, although the cutaneous incisions over the veins were sutured.

A surgical consultation was requested. Owing to the poor response of the patient to repeated blood transfusions and various forms of medical treatment, including snake venom, and because of the past history, she was transferred to my service for a splenectomy after further study. An examination of the uterus and cervix revealed no gross pathologic condition. There was a constant general serosanguineous ooze from the uterus, but this was not coming from one definite area. The cervix was slightly inflamed and eroded owing to numerous repeated uterine packings. A dilatation and curettage was done for biopsy and the uterus was packed. The cervical os was touched up with silver nitrate. A pathologic report on the biopsy scrappings showed endometritis; this was not of an unusual character.

Under local anesthesia a biopsy specimen was taken from the sternal bone marrow. The pathologic report was as follows: The bone marrow was hyperplastic chiefly with normoblasts. Megakaryocytes were frequently seen.

Operation.—The presence of megakaryocytes encouraged us to perform a splenectomy, and this was done on Sept. 27, 1935 by one of us (A. X. U.) under general anesthesia. The operation was done rapidly and all bleeding points were promptly clamped and controlled, so that there was a minimal amount of bleeding and shock. The spleen was about twice normal size. Two splenuli were found and removed. The immediate postoperative condition was good.

The pathologic report was made by Dr. A. R. Casilli: The spleen weighed 340 Gm., and was about twice normal size. The capsule was slate color, slightly thickened and wrinkled. The cut surface showed lymphoid hyperplasia and the pulp was red and soft. The two small accessory spleens present showed the same gross findings.

Microscopic examination showed that the lymphoid follicles were small (the gross examination was apparently erroneous); the sinuses were filled with mononuclears and red cells. Billroth's cords showed red cells, frequent normoblasts, lymphoid cells, a small number of polymorphonuclear leukocytes, occasional eosinophils, rare myeloblasts and reticular cell proliferation.

The diagnosis was hyperplastic spleen on the basis of thrombopenic purpura.

Spence[5] has stated that most spleens removed are enlarged to twice normal size. Wiseman, Doan and Wilson[6] have stated that the spleen is usually normal and never more than

5. Spence, A. W.: The Results of Splenectomy for Purpura Hemorrhagica, Brit. J. Surg. **15**: 466, 1929.

6. Wiseman, B. K.; Doan, C. A., and Wilson, S. J.: The Present Status of Thrombopenic Purpura, J. A. M. A. **115**: 8 (July 6) 1940.

slightly increased in size; any case in which the spleen is easily palpated almost surely belongs to the symptomatic group of purpuras. Our case could not rightly belong to the symptomatic group even though the spleen was twice normal size. The mother and the first child, who was stillborn, had severe purpura and after the splenectomy the mother has been free of all purpuric petechiae and hemorrhages, but the first living child had petechiae and a low platelet count. There was, presumably, evidence of a hereditary congenital defect.

Postoperative Course.—The postoperative course was uneventful. When the patient was seen after she returned to her bed from the operating room there was no evidence of bleeding from the transfusion sites on the arms where there had been oozing previously from the cutaneous incisions, and there was no evidence of fresh bleeding from the uterus. This finding corresponds to the report of Brown and Elliott [7] in which all evidence of hemorrhage ceased immediately after splenectomy in 2 of their cases. Two days after the operation the platelet count rose to 268,000 and steadily to 826,000 on the thirteenth day, after which there was a gradual fall, and on the day of her discharge from the hospital, twenty-five days after the operation, it was 124,000. Two years after she was operated on the platelet count was 75,000 and five years later it was 100,000. The bleeding time on the twelfth postoperative day was two minutes, on the eighteenth day one and one-half minutes, on the twentieth day one and one-half minutes and five years later two and one-half minutes. There was a steady rise in the red blood cell count and in the hemoglobin content. The first postoperative day the red cell count was 3,980,000 and the hemoglobin 38 per cent. Eighteen days after the operation the red cell count was 5,040,000 and the hemoglobin 52 per cent. A blood examination made five years later showed red cells 4,600,000, leukocytes 13,100, hemoglobin 85 per cent, platelets 100,000, bleeding time two and one-half minutes, coagulation time four and one-half minutes, polymorphonuclear leukocytes 70 per cent, lymphocytes 26 per cent, eosinophils 1 per cent and monocytes 3 per cent. Although splenectomy results in clinical improvement, it does not necessarily affect the platelet count except transitorily. Two years and two months after the operation, during the sixth month of pregnancy, the platelet count was 75,000. This finding corresponds to the findings reported by Evans,[8] Brown and Elliott [7] and Spence.[5]

Subsequent Pregnancies.—One year and eight months after splenectomy she became pregnant. Her last period was on May 28, 1937. In the sixth month of her pregnancy her red blood cell count was 4,800,000 and the platelet count 75,000. Examinations of the urine during the antepartum period were negative. She felt well with no vomiting, no headache and no edema of the ankles. She was delivered in the hospital on March 12, 1938 of a full term living female child weighing 7 pounds 13 ounces (3,544 Gm.). It was a normal left occipitoanterior delivery and there was a normal amount of bleeding. On the day of delivery the blood showed 5,550,000 erythrocytes, 85 per cent hemoglobin, 60,800 platelets, bleeding time four and one-half minutes and coagulation time two minutes. The urinalysis was negative. She had a normal postpartum course.

Twenty-four hours after delivery the baby had petechiae on the face, buccal mucous membrane and soft palate. There were no free hemorrhages. The child was given a transfusion of 50 cc. of blood. The next day there was evidence that the petechiae were beginning to fade and a few days later they disappeared. An examination of the baby's blood showed a bleeding time of five and one-half minutes and a platelet count of 23,200. On July 26, 1940 when this child was 2 years and 4 months old the blood showed a red cell count of 3,850,000, leukocytes 8,200, hemoglobin 79 per cent, bleeding time one and one-half minutes and coagulation time three minutes. Brown and Elliott [7] also cited 1 case following splenectomy for thrombopenic purpura in which a woman gave birth to a child with all classic signs and symptoms of thrombopenic purpura.

Our patient again became pregnant and was delivered at home on Nov. 28, 1939 by one of us (C. I. H.), who had delivered all her children. It was a breech delivery of a male child. There was a normal antepartum course with negative urinalysis, normal blood pressure readings and no purpuric manifestations. The child was normal, full term and free of any petechiae. Five minutes after the placenta was delivered the mother suddenly became cyanotic and clammy, with a complaint of sudden severe pain in the chest accompanied by dyspnea. This episode suggested pulmonary embolus. Her condition improved and she made a good recovery. She has felt well since. Her blood picture has been satisfactory and she has had no complaints and has been symptom free of her previous condition.

A blood examination done on the second child on July 26, 1940 showed erythrocytes 4,950,000, leukocytes 14,600, hemoglobin 80 per cent, polymorphonuclear leukocytes 45 per cent, lymphocytes 50 per cent, mononuclears 4 per cent, basophils 1 per cent, bleeding time one minute and coagulation time two minutes. No record of the platelet count can be found.

She again became pregnant in 1941. Her last menstrual period was Dec. 20, 1940. Her antepartum course was completely uneventful. On Oct. 14, 1941 she was delivered of a living full term male child by breech presentation. The labor was extremely short—about two and one-half hours. About five minutes after the placenta was delivered she complained of a sudden severe pain in the chest and difficulty in breathing and cyanosis became intense. She recovered from this episode in a short time and remained perfectly well during the remainder of her postpartum period. Further check-up on the mother and children at this time was impossible since the family moved to another city.

The patient has been followed for seven years and she has shown no tendency to have hemorrhages, purpura or weakness; she stated that her menses have been normal with no excessive bleeding and that she has felt well since the operation. At present she is said to be employed in a factory.

SUMMARY

The case of thrombopenic purpura here reported was followed for eleven years before operation and for seven years after splenectomy. The following are the salient facts of the case:

1. She had several admissions to the hospital for hemorrhages.

2. Before being operated on she was delivered of a full term stillborn male fetus. The fetus had a pupura similar to the mother's. Nineteen days post partum the mother was readmitted to the hospital for treatment of severe bleeding from the uterus.

3. After repeated blood transfusions and extensive medical treatment without cessation of hemorrhage a splenectomy was performed and resulted in apparent clinical cure.

4. Two years and six months after the splenectomy she gave birth to a full term living female child weighing 7 pounds 13 ounces. The mother had a normal antepartum and postpartum course without any signs or symptoms of purpura. Twenty-four hours after delivery the child had a petechial purpura which disappeared in a few days. Examination of the blood of this child revealed anemia, bleeding time prolonged to a degree and a decided decrease in the platelet count from normal.

5. Four years after splenectomy the patient gave birth to a living full term male child.

6. Six years after splenectomy she gave birth to a full term living male child, making a total of three living children after operation.

7. The last two children born were apparently free from any blood dyscrasia.

8. In the last two pregnancies the mother had a normal antepartum course and was free from any purpura, but immediately after the placenta was delivered in each instance she had a sudden attack simulating pulmonary embolism, from which she made an uneventful recovery in a short time. These attacks may be related to her history of thrombopenic purpura.

9. At the time of writing the patient feels well and has returned to her employment in industry.

148 Market Street.

7. Brown, D. N., and Elliott, R. H.: The Results of Splenectomy in Thrombopenic Purpura, J. A. M. A. **107**: 1981 (Nov. 28) 1936.
8. Evans, W. H.: J. Path. & Bact. **31**: 815, 1928.

Special Clinical Article

STUDIES ON THE MECHANISM OF ARTERIAL HYPERTENSION

CLINICAL LECTURE AT ATLANTIC CITY SESSION

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It seems profitable from time to time to stop during the course of an investigation and look back rather than forward to determine how well the body of knowledge is being built. In the past years the quest to understand the mechanism of hypertension has occupied many investigators, but by force of circumstances at this time I must limit my remarks to the work which has especially concerned us in the Lilly Clinic. My associates have presented more comprehensive reviews elsewhere which, we hope, exhibit the relationship of our work to that of the many others who are contributing to this vast field so fruitfully.

I should begin this running account somewhere about 1930, since at that time very few investigators were studying hypertension. Our work was largely concerned with two approaches to the problem, namely a search for a pressor agent which could cause hypertension in man [1] and an attempt to ascertain the part played by the nervous system in the genesis of hypertension.[2] Since no thoroughly reliable method was at hand for the production of hypertension in animals, the investigations were almost wholly limited to man.

It may be recalled that the general position of the problem at that time was that hypertension was due to overactivity of the nervous system, that attempts to lower blood pressure were considered dangerous, owing to development of renal insufficiency, and that essential hypertension was characterized by normal renal function.

As regards the first of these propositions, extensive work by various surgeons in collaboration with internists has left little doubt that in man, at least, most cases of hypertension are not directly caused by hyperactivity of the nervous system. But this led to an unhealthy reaction. The nervous system was promptly relegated by some to complete oblivion. It is becoming more and more evident that the nervous system both contributes to hypertension by directly causing vasoconstriction, especially when rapid adjustment of pressure is required, and aids in the maintenance of the body in a state such that it is capable of responding to humoral stimuli which elevate pressure.[3]

The second of these beliefs, namely that elevated blood pressure must not be lowered lest the kidneys fail in their function, has been an especially difficult view to combat, and this goes back as far as Cohnheim. It seems firmly fixed in some clinical teaching that hypertension occurs for a purpose; that it is a compensatory phenomenon. We became convinced that this was not true very early in our studies [4] because we found that blood pressure could be lowered in hypertensive patients by a variety of means and that not the slightest evidence of insufficient tissue perfusion occurred, nor was there any change in overall renal efficiency as measured by urea clearance or ability to concentrate urine. Subsequent to this work it has been shown time and time again that this is true, yet the notion of the compensatory nature of hypertension still persists.

The last of these beliefs, that renal function was normal in hypertension, has also been disproved. The important concept of "clearance," which originated with Van Slyke, has been elaborated and implemented by the brilliant studies of Smith and his associates. Application of this tool to hypertension has been made in Smith's laboratory, particularly by Goldring and Chasis, and in our own by Corcoran. In short, it has become abundantly clear that, while the excretory function of the kidneys may not be impaired early in the course of the disease, intrarenal hemodynamic changes of great importance occur. It is no longer sufficient in the study of hypertension to limit the examination to the excretory powers of the kidneys. It is a growing conviction that the diversity of action of the kidneys has been greatly underrated.

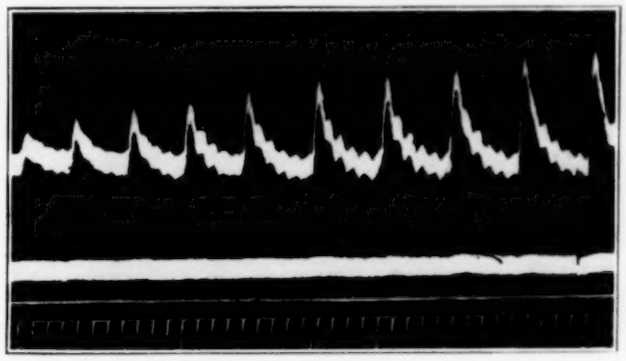

Fig. 1.—The effect of increasing amounts of angiotonin injected intravenously into a cat with the central nervous system destroyed. The upper graph represents arterial blood pressure, the second respiration, the third the base line, the fourth the time in intervals of one minute and the fifth the time of injection. The first injection represents 0.01 cc. and the last 0.1 cc. with increases of 0.01 cc. in the interval.

With these thoughts generally prevailing, it was to be expected that the so-called surgical treatment of hypertension should have been actively pursued, especially by the now famous teams of Allen, Adson and Brown, Peet and his associates and Smithwick. And Dr. George Heuer and I also made such studies. We came to the conclusion several years ago, and have not changed our belief since, that this treatment is palliative and not curative, that in many patients a period of from two to seven years of respite from the severely damaging effects of hypertension could be secured and that this was desirable if the operation itself were not too drastic.[5]

The search for a pressor substance in hypertensive patients was conditioned by the thinking of the day, namely that nervous impulses were transmitted by chemical substances of very simple structure, such as acetylcholine, and that all known pressor and depressor substances were also of relatively simple structure and the pressor agents mostly limited to the group of

From the Lilly Laboratory for Clinical Research, Indianapolis City Hospital.

Read in the General Scientific Meetings at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1942.

1. Page, I. H.: Pressor Substances from the Body Fluids of Man in Health and Disease, J. Exper. Med. **61**: 67, 1935.
2. Page, I. H.: The Nature of Hypertension, Bull. New York Acad. Med. **13**: 645, 1937.
3. Page, I. H.: The Nature of Clinical and Experimental Arterial Hypertension, J. Mount Sinai Hosp. **8**: 3, 1941.
4. Page, I. H.: The Effect on Renal Efficiency of Lowering Arterial Blood Pressure in Cases of Essential Hypertension and Nephritis, J. Clin. Investigation **13**: 909, 1934.
5. Page, I. H.: Medical Aspects of Surgical Treatment of Hypertension, J. A. M. A. **110**: 1161 (April 9) 1938.

phenolic amines. Having been in Germany in Volhard's clinic, I had seen some of the early work on renin but was unimpressed, as most of the men in that clinic were. The fact was we did not see the relationship between the kidneys and hypertension.

Extended studies with methods which we believed should have shown the presence of excess amounts of

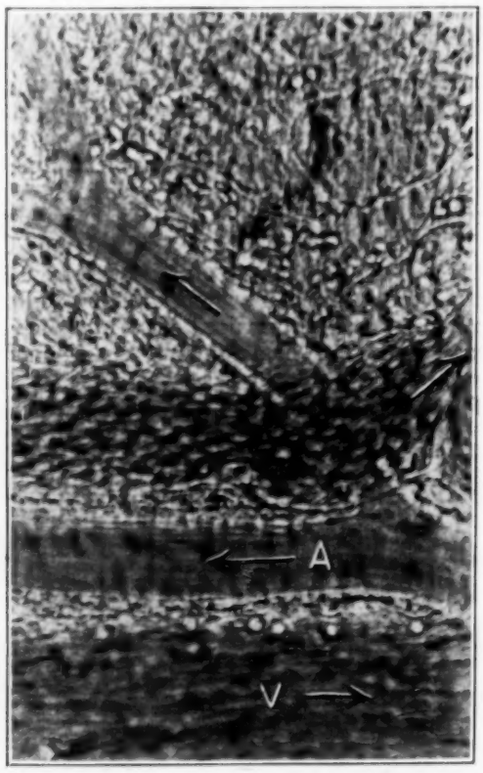

Fig. 2.—A branching arteriole and venule in a moat chamber in a rabbit's ear, showing the normal diameter of the vessels. Figures 2, 3, 4 and 5 show the effect of the injection of angiotonin and induction of renal hypertension on the vessels of the rabbit's ear from work of Abell and Page.

phenolic amines in the blood and urine of hypertensives failed to show their presence in excess.[6] Since this work had left us convinced that this approach to the humoral mechanism of human hypertension was unprofitable, work on the pressor agent discovered by Tigerstedt and Bergman in the kidneys was started. Repetition of their work and that of Bingel and Strauss [7] and of Hessel [8] left no doubt that a pressor substance was present but that it was not a simple amine. It was associated with a protein fraction.

At this time Goldblatt's contribution appeared and naturally we were in haste to reproduce it. We did so and there was not a doubt in our minds that he had taken a step forward of the greatest importance.

It seemed necessary at this time to study more carefully the relationship of the nervous system to hypertension in animals with experimental hypertension to make perfectly certain that it was not the core of the problem of hypertension. To have made a mistake in choosing the road to travel would have been a catastrophe—at least a minor one. A number of investigators realized this and performed yeoman service. The task of systematically removing various portions of the nervous system to show that these operations were mostly without important effect, at least in dogs, was a thankless but important one. This is an extremely interesting story but would lead us too far afield at the moment to go into it more deeply. Despite the seeming unimportance of these studies and the little attention they have received, it is my belief that a much more thoughtful reevaluation of the importance of the nervous system in its relation to hypertension is soon to occur. At any rate, these studies served to clear the deck and forced attention on the possibility of the participation of a humoral mechanism in hypertension.

Some of us felt that extensive studies on the physiology of pressor kidney extracts, that is, renin, would be unsatisfactory because of their crudeness, being as they were mixtures of pressor and depressor agents. Helmer and I [9] therefore attempted to purify these extracts and obtain a product with reasonably constant chemical and physiologic properties. During the various steps in the purification the fractions were tested in both intact animals and perfused rabbits' ears. The latter preparation was used because at that time our conviction was very strong—too strong—that the pressor agent of hypertension must act almost exclusively directly on the peripheral vessels. The interesting fact emerged from these tests that, as the renin became

Fig. 3.—The same vessels at the time of greatest arterial constriction following injection of 0.2 cc. of angiotonin.

more active in intact animals, it caused less vasoconstriction in the perfused ear. Finally a preparation was made which was highly pressor in cats but caused no vasoconstriction in the ear. It was also obvious that, as purification proceeded, something had been removed which was necessary for the pressor action of renin. This something proved to be contained in the pseudoglobin fraction of blood, as Kohlstaedt, Helmer

6. Page, I. H.: Vasopressor Action of Extracts of Plasma of Normal Dogs and Dogs with Experimentally Produced Hypertension, Proc. Soc. Exper. Biol. & Med. **35**: 112, 1936; Pressor Substances from the Body Fluids of Man in Health and Disease.[1]

7. Bingel, A., and Strauss, E.: Deutsches Arch. f. klin. Med. **96**: 476, 1909.

8. Hessel, G.: Ueber Renin, Klin. Wchnschr. **17**: 843, 1938.

9. Helmer, O. M., and Page, I. H.: Purification and Some Properties of Renin, J. Biol. Chem. **127**: 757, 1939.

and I [10] showed, and was named renin activator. It was stated at that time and is reiterated here that the term "renin activator" connotes merely that renin is inactive in the absence of this special protein contained in blood. Nothing was implied as to the nature of the action between the two substances. Much evidence indeed suggests that renin is an enzyme and acts on a

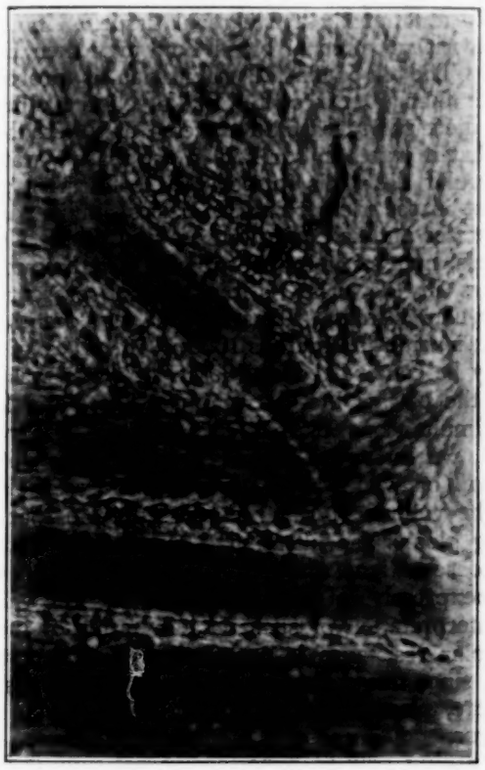

Fig. 4.—The same vessels after the arteriole had returned to its normal diameter

substrate, i. e. renin activator. It was quite clear to our group after these observations and also to the able group of investigators working with Houssay and Braun-Menendez that the pressor substance was not renin itself but a third substance formed as the result of interaction of renin and renin activator. This proved to be true, and both groups showed that this third substance was a heat stable, dialysable material with strong pressor properties (fig. 1). Helmer and I named the substance "angiotonin," a somewhat nonspecific term calculated to avoid implications of function.[11] The name "hypertensine," given by the South Americans, seems to us attractive but decidedly premature in its implications.[12] The task ahead—not behind—is to show whether or not angiotonin is in truth the chemical agent mediating hypertension.

EVIDENCE

Having separated angiotonin, we were in a position to see whether it had properties consonant with those required of a substance which could cause essential hypertension in man or renal experimental hypertension in animals. Let us now turn to an examination of this evidence.

10. Kohlstaedt, K. G.; Helmer, O. M., and Page, I. H.: Activation of Renin by Blood Colloids, Proc. Soc. Exper. Biol. & Med. **39**: 214, 1938.
11. Page, I. H., and Helmer, O. M.: A Crystalline Pressor Substance, Angiotonin, Resulting from the Reaction Between Renin and Renin Activator, Proc. Central Soc. Clin. Res. **12**: 17, 1939.
12. Braun-Menendez, E.; Fasciolo, J. C.; Leloir, L. F., and Muñoz, J. M.: The Substance Causing Renal Hypertension, J. Physiol. **98**: 283 (July) 1940.

1. *An Especial Type of Peripheral Vasoconstriction.*—Since patients with hypertension do not have cold, pale skins, it is evident that the arteriolar constriction which is the chief cause of the pronounced increase in peripheral resistance is of an especial sort. Such a balance must be struck between the pumping force of the heart and the degree of narrowing of the peripheral arterioles that the arterial pressure rises but flow of blood to the tissues is not reduced. Such pressor agents as epinephrine and pitressin obviously could not be concerned in the genesis of this kind of hypertension because of the severe reduction of peripheral flow they cause. Angiotonin appears unusual among pressor substance in its ability to produce just the kind of vasoconstriction which occurs in essential hypertension. This can be shown not only by measuring the skin temperature after injection of angiotonin but by direct observation of the vessels which have grown into a quartz chamber in the ear of a rabbit [13] (figs. 2, 3, 4 and 5).

It is interesting that the constriction of the vessels in the ear of a rabbit in which angiotonin has been injected are indistinguishable from those in rabbits in which experimental renal hypertension has been induced [14] (fig. 6). This constitutes evidence of importance that there is real similarity between the action of the humoral agent of hypertension and angiotonin.

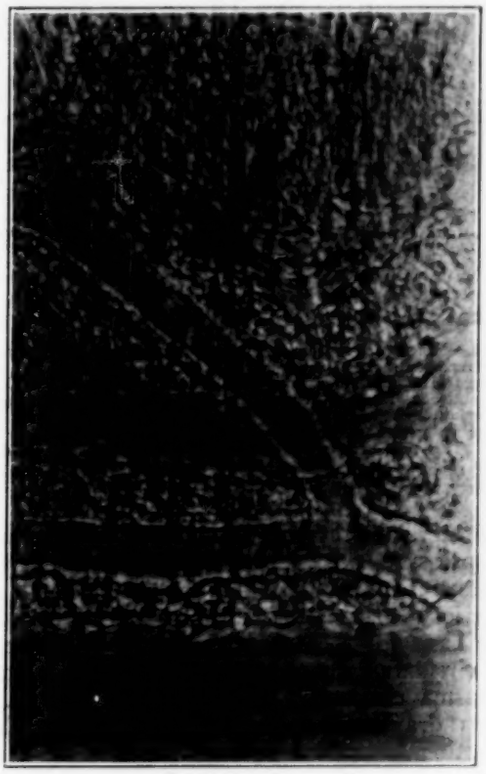

Fig. 5.—The same vessels after the rabbit has become hypertensive. The arterial pressure is 1.5 normal. The arteriole is constricted to approximately the same degree as that which occurred following injection of the angiotonin.

2. *Changes of Intrarenal Circulation.*—It has been too long supposed, largely on the basis of technically inadequate methods, that "renal function," i. e. excretory function, is entirely normal, at least in early hypertension. Actually it has been shown that there occurs

13. Abell, R. G., and Page, I. H.: The Reaction of Peripheral Blood Vessels to Angiotonin, Renin and Other Pressor Agents, J. Exper. Med. **75**: 305, 1942.
14. Abell, R. G., and Page, I. H.: The Effects of Renal Hypertension on Vessels of the Ears of Rabbits, J. Exper. Med. **75**: 673 (June) 1942.

a characteristic change in the flow of blood through excretory renal tissue.[15] Even the simple methods of estimation of renal function indicate that the ability of hypertensive patients to concentrate urine is early impaired, well before lowering of urea clearance has indicated loss of function.[16]

The characteristic circulatory change consists of a tendency to decreased renal blood flow and a consistent increase of the head of pressure within the glomerular capillaries. If without changing arterial pressure, for example, the small arteriole distal to the glomerulus, the so-called efferent arteriole, had constricted, increased intraglomerular pressure and decreased blood flow would inevitably result. Actually, it appears from a recent mathematical analysis (Lamport) of renal hemodynamics in this disease that there has occurred constriction of both the afferent and the efferent arterioles. The increase in resistance of the afferent arteriole seems to protect the fragile glomerular capillaries from the increased systemic pressure, canceling it out, so that the back pressure of the constricted efferent arterioles is probably the origin of the increased

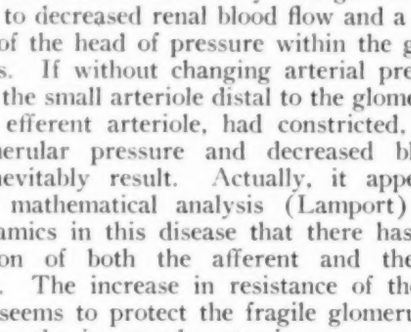

Fig. 6.—Schematic representation of renal status in untreated and treated (renal extract) hypertensive patients as compared with the normal. The values HD/TMD refer to renal blood flow per unit of tubular mass (TMD) and RA, RE and R respectively to calculated (Lamport, 1942) resistance through afferent and efferent arterioles and total arteriolar resistance in millimeters of mercury per cubic centimeter of blood per minute. The pressure is the mean of brachial systolic and diastolic pressures. The data and conclusions were presented by Corcoran and Page: Fed. Proc. **1**: 17, 1942.

intraglomerular pressure. Because of the increased systemic pressure, the rate of blood flow through excretory tissue is frequently within the normal range in spite of arteriolar constriction and, presumably, sclerosis.

The basis for these conclusions as to the nature of renal circulation in hypertension is determination of the plasma clearances of diodrast and inulin. Conclusions drawn from these and similar methods of observation have been loosely criticized as inaccurate and inconclusive, in part because by analogy and recollection they are thought of as empirical tests of "kidney function" rather than observations based on sound evidence. Because of this misconception, a few lines may be devoted to them.

Briefly, diodrast is excreted by the secretory activity of the tubular cells. This activity is so intense that, when the blood diodrast concentration is not too high, nearly all the diodrast in the renal blood is excreted in a single passage (Corcoran, Smith and Page). Therefore, if 5 mg. of diodrast (as iodine) appears in one minute's urine and there is 1.0 mg. per hundred cubic centimeters of plasma, it follows that very nearly 500 cc. of plasma has perfused in contact with excretory cells in that minute. Under such conditions, then, plasma diodrast clearance is 500 cc. and is equal to the plasma flow to functionally active renal tissue. Knowing the hematocrit ratio, renal blood flow may then be calculated. The error of the calculation is probably not greater than 10 per cent. Inulin, on the other hand, is an inert polysaccharide excreted only because of the fact that it exists in solution in the plasma water. As glomerular filtrate is formed by the filtration pressure present in the glomerular capillaries, inulin passes out with water and salt and dextrose and urea. Unlike all of these, none of it is reabsorbed. The amount which appears in the urine is the amount present in the glomerular filtrate. Thus, if 100 mg. occurs in one minute's urine and there is 100 mg. in 100 cc. of plasma, it may be concluded that 100 cc. of water was filtered from the plasma in that minute. Therefore, knowing the simultaneous plasma clearances of diodrast and inulin, we know within narrow limits the volume of plasma (or whole blood) which perfuses the kidneys and the volume of water expressed from that plasma during glomerular filtration. It will be admitted that such observations are neither in themselves empirical nor inexpressive of functional change. The validity of the interpretation of such data in terms of individual arteriolar resistance is perhaps more subject to challenge, since this demands further measurements (blood pressure, plasma protein content), themselves subject to error.

Returning now to hypertensive patients, it is found that filtration rate (inulin clearance) is well maintained, while there is in many—but by no means all—a tendency to reduced renal blood flow. Maintenance of filtration at normal levels while plasma flow is somewhat reduced indicates that there has occurred an increased pressure head in the glomerular capillaries, so that more water is squeezed from less blood. Since, in spite of increased systemic pressure, renal blood flow is often less than normal, it is apparent that there must have occurred increased renal resistance. This increased resistance is due to constriction distributed between the afferent and efferent arterioles.

Since such constriction is characteristic of hypertension, it would be reasonable to insist that angiotonin reproduces this change before accepting it as being concerned in the genesis of the disease. Actually, we have found in dogs and man[17] that it does this with great facility; similarly, the occurrence of normal rates of renal perfusion in some human hypertensive patients would challenge any parallelism of human hypertension with experimental renal disease if it is assumed that the experimental disease is due to renal ischemia in the sense of a deficit in total perfusion with blood. However, as we have pointed out,[18] blood flow through the kidneys in hypertension, clinical or experimental, seems to depend on a balance struck between increased resistance and increased pressure. Neither the presence of

15. Goldring, William; Chasis, Herbert; Ranges, H. A., and Smith, H. W.: Effective Renal Blood Flow and Functional Excretory Tubular Mass in Essential Hypertension, J. Clin. Investigation **17**: 505 (July) 1938.

16. Corcoran, A. C., and Page, I. H.: Quantitative Formulation of Maximum Urinary Specific Gravity, J. Mount Sinai Hosp. **8**: 459, 1942.

17. Corcoran, A. C., and Page, I. H.: The Effects of Angiotonin on Renal Blood Flow and Glomerular Filtration, Am. J. Physiol. **130**: 335, 1940.

18. Corcoran, A. C., and Page, I. H.: Observations on the Relation of Experimental Hypertension to Renal Clearance and Renal Ischemia, Am. J. Physiol. **123**: 43, 1938; Renal Blood Flow in Experimental Renal Hypertension, ibid. **135**: 361, 1942.

ischemia nor its absence is of itself evidence for or against the renal genesis of hypertension. Renal ischemia may develop in some cases and not in others. The same is true in dogs in which the stimulus to the production of hypertension is renal; i. e., a clamp on the renal artery or silk perinephritis.

3. *Cardiodynamic Effects.*—I said before that the force of the heart beat must be augmented in order that arterial pressure may rise and yet reduction in peripheral blood flow not occur. Clinically this augmented force is easily recognized by the heave and thrust of the heart and its ultimate hypertrophy. The heart is a specialized portion of the vascular system; therefore it is not surprising that substances which act on the peripheral vessels will act on it as well.

Angiotonin has very profound cardiodynamic effects. I shall not describe the beautiful experiments of Wilkins and Duncan,[19] Bradley and Parker,[20] Lorber [21] and Hill and Andrus,[22] but content myself with the observation that both the force of the beat and the efficiency of the muscle of the heart are increased by angiotonin. On the other hand, some evidence is found that at least during the acute effects of the drug during brief experiments, certain signs of cardiac failure appear. This may be due to failure of adaptation to occur in short lived experiments.

Taylor and I [23] used the ballistocardiograph, which Starr, Hamilton and Cournand have investigated so intensively, to record some of the activities of the heart when angiotonin was injected. We were immediately impressed by the similarity of the tracing of the hypertensive with that of the normotensive made hypertensive by injection of angiotonin, and how dissimilar were the tracings following injection of tyramine and methylguanidine. The last two pressor agents were used because in the rabbits' ears they produced vasoconstriction resembling that of angiotonin more closely than the other drugs studied (fig. 7).

Cardiac output is definitely reduced by angiotonin as a result both of reduction in stroke volume and of pulse rate as well. Many hypertensive patients also have reduced cardiac output. In many others this reduction is probably compensated for by enlargement of the heart.

Of especial interest is the fact that angiotonin elevates blood pressure almost asymptomatically, while other known pressor agents produce severe symptoms and signs.

This evidence, combined with that of other investigations, demonstrates pronounced similarity in the cardiodynamic effect of angiotonin and the cardiodynamics of naturally occurring hypertension. The similarity is not complete at the present stage of knowledge, and more information on this vascular segment is to be desired.

4. *Presence of a Vasoconstrictor Substance in the Renal Vein Blood and Peripheral Blood.*—When hypertension is induced by reducing the pulse pressure by a clamp on either the renal artery or the scar following perinephritis in dogs, it can be shown that a vasoconstrictor agent appears in the blood of the renal vein and in the peripheral blood as well.[24] This is true also of the peripheral blood. Whether this is angiotonin or not is still uncertain. We have made an extensive study of it and I believe at present that the evidence is in favor of its being angiotonin combined with a protein carrier. Since it appears in the blood in both experimental and naturally occurring hypertension and following the injection of renin, this is suggestive evidence in favor of its being angiotonin-like.

There are many other similarities between angiotonin and the naturally occurring humoral agent of hypertension, but this must suffice for the present. Study of these similarities is, I believe and hope, leading to an understanding of the mechanism of hypertension itself. And inherent in such studies is the gradual evolution of methods adapted to the clinical analysis of hypertensive patients. While many of them must still be employed in research clinics it would not be over-

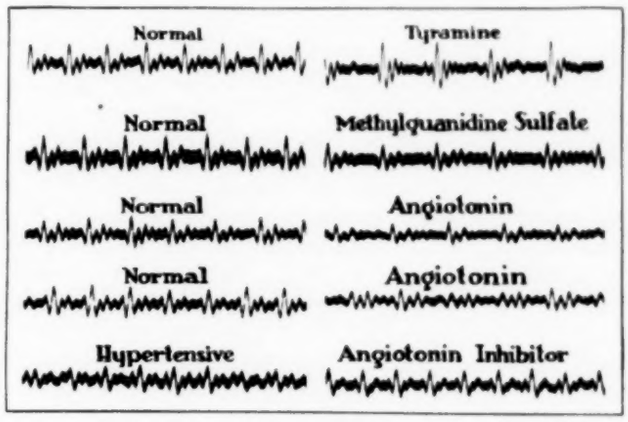

Fig. 7.—Ballistocardiographic tracing of normal persons after injection of tyramine, methylguanidine sulfate and angiotonin. The last pair of tracings are of a hypertensive patient before and after treatment with kidney extract.

confident to predict that, in the not distant future, they will be sufficiently simplified for more general bedside use.

KIDNEY EXTRACTS

I will not detail the reasons why we believed that extracts of kidneys contain a substance or, more probably, substances which destroy angiotonin, which reduce arterial pressure and which cause reversal of the vascular lesions in the eyegrounds of patients exhibiting the malignant syndrome. Suffice it to say that there are good physiologic reasons. But the preparation and assay of these extracts are matters of great difficulty. Since nothing is known of the chemical properties of the substance sought, the preparation of active extracts is almost purely a hit or miss problem.

What may be expected of relatively crude extracts of kidney when injected into hypertensive dogs, rats or human beings? A slow, progressive fall in arterial pressure occurs in many but not all of the subjects. During the first few days of the injections—which are given daily—a little fever may occur, but it then disappears. The fall in blood pressure is seldom to normal

19. Wilkins, R. W., and Duncan, C. N.: The Nature of the Arterial Hypertension Produced in Normal Subjects by the Administration of Angiotonin, J. Clin. Investigation **20:** 721, 1941.

20. Bradley, S. E., and Parker, B.: The Hemodynamic Effects of Angiotonin in Normal Man, J. Clin. Investigation **20:** 715, 1941.

21. Lorber, Victor: The Action of Angiotonin on the Completely Isolated Mammalian Heart, Am. Heart J. **23:** 37 (Jan.) 1942.

22. Hill, W. H. P., and Andrus, E. C.: The Cardiac Factor in the "Pressor" Effects of Renin and Angiotonin, J. Exper. Med. **74:** 91, 1941.

23. Taylor, R. D., and Page, I. H.: The Effect on Cardiac Output of Renal Extracts Which Lower Blood Pressure in Hypertensive Patients and of the Pressor Substances Angiotonin, Tyramine and Methylguanidine Sulfate, Proc. Central Soc. Clin. Res. **14:** 19, 1941.

24. Page, I. H.: Demonstration of the Liberation of Renin into the Blood Stream from Kidneys of Animals Made Hypertensive by Cellophane Perinephritis, Am. J. Physiol. **130:** 22, 1940; The Vasoconstrictor Action of Plasma from Hypertensive Patients and Dogs, J. Exper. Med. **72:** 301, 1940.

in human beings, often to far below normal in animals, and the diastolic pressure usually is reduced comparatively more than is the systolic. After several weeks of treatment it may be noticed both by patient and by physician that regressive changes in the retinopathy are occurring and several months later hemorrhages, exudates and papilledema may all have disappeared.

From time to time moderate to severe reactions to the material have occurred. These usually consist of a sudden fall in blood pressure several minutes after the extract has been administered along with cramping pains in the back or chest. These reactions often are very unpleasant, but no serious complications has resulted from them.

The mechanism of the action of these extracts must be very complicated. At present we are working on the hypothesis that their action is chiefly due to their ability to destroy angiotonin; in short, that they contain enzymes, angiotonases, which destroy angiotonin. Up to the present there is no proof that this is so; nevertheless, it is an attractive hypothesis. There is some evidence in favor of this view, briefly as follows:

Angiotonin Destruction and Angiotonases.—If angiotonin and kidney extract are mixed, incubated thirty minutes and boiled, and the filtrate is tested for pressor activity on a pithed cat, angiotonases could be estimated.[25] Indeed, there appear to be at least two of them, the optimum activity of one being at about p_H 4.0 and of the other at about p_H 7.5

The next step, namely the demonstration that angiotonase activity and antipressor activity go hand in hand, has not as yet been taken. Of one thing we feel sure, and that is that the enzyme with a p_H optimum of 4.0 does not reduce blood pressure in human beings with hypertension. It is quite evident that a matter of importance is involved in the question of the identity of angiotonase and antipressor activity; hence the evidence must be very convincing before it is acceptable.

Action of Kidney Extract on Renal Hemodynamics.—If we assume that there is a relationship between the action of kidney extracts and their angiotonase content, the results obtained from a study of their action on human and dog kidneys is understandable. Corcoran and I[26] found a decrease in glomerular efferent arteriolar tone in most patients treated with kidney extract, and an associated increase of functionally effective renal blood flow. This is just the reverse of the renal action of angiotonin itself, as I have already explained. No evidence was obtained that regeneration of tubular cells occurred, but further progressive loss of tubular tissue was not usual. Thus renal extracts seem to decrease the angiotonin-like intrarenal vasoconstriction and, probably because of the decrease of arterial pressure, attenuate the progress of renal tissue destruction. Even these results cannot be accepted as unequivocal evidence in favor of our working hypothesis because of the possibility that these actions might be complicated by the presence of very small amounts of pyrogens. It has been shown by Chasis, Ranges, Goldring and Smith[15] that pyrogens cause acute increases of renal blood flow, largely because of efferent vasodilatation. While our measurements were made only in subjects who were fever free for the previous twenty-four hours, nevertheless the action of pyrogens might be more subtle than is at present suspected.

Effect of Kidney Extract on Cardiac Output.—Cardiac output is usually either normal or decreased in hypertension. The reduction in stroke volume is easily seen on the ballistocardiographic tracing and, as Starr pointed out, the contour of the curve of hypertensive patients may be similar. It closely resembles the curve obtained when angiotonin is injected into normotensive human beings. For these reasons it seemed of interest to Taylor and me to see if kidney extract altered some of these phenomena toward normal.

In brief, it was found that in 15 patients in whom the blood pressure was reduced from an average mean of 174 mm. of mercury to 140, cardiac output as measured by the ballistocardiograph was increased roughly 15 to 20 per cent. When extract was discontinued and arterial pressure rose, the cardiac output decreased to its former level.

The contour of the ballistocardiographic tracing often seen in hypertensive patients was lost and replaced by the contour seen in normotensive persons when the arterial pressure fell as a result of injecting kidney extract.

The Outlook for Kidney Extracts as Therapeutic Agents.—It now seems reasonably established that kidney extracts contain substances with physiologic effects some of which seem desirable from the therapeutic point of view. But these substances have not been separated and nothing is known of their chemical nature or of the way in which they produce their effects.

It is particularly important at this stage of the investigation not to confuse the issue by the use of loose expressions such as "specific" and "nonspecific." We do not know, and will not know, until the various active principles are separated, to what substance or substances can be attributed the multiple action of these extracts.

It has long been realized that fever is often associated with fall in arterial pressure, and this would be expected on the basis of what is known of the hemodynamic changes which occur. It is not known, however, whether a rise in body temperature is a necessary part of this phenomenon. Furthermore, almost nothing is known about the manner of action of pyrogens.

The use of pyrogens has been advocated from time to time in the treatment of hypertension. Several years ago we employed injections of colloidal sulfur, protein and heavy metals. We gave it up because of the lack of conviction the results carried. Lately we have used typhoid vaccine on 2 patients with advanced renal failure, with the result that severe hematuria occurred in both. A disastrous fall in renal function occurred in 1 and a less serious fall in the other. From this experience we believe that this particular pyrogen must be employed with the greatest care, if at all, when renal insufficiency is present.

The yields of the active materials in kidney extract are very poor, and a great deal has yet to be learned about stability and similar practical issues. Substances which sensitize the body have not been completely eliminated; hence this danger has always to be considered.

For these reasons I am forced to view the work on kidney extract as an experiment of great interest, but one which must be much further pursued before one has the right to suggest it as a treatment in the true sense of the word.

25. Helmer, O. M.; Kohlstaedt, K. G.; Kempf, G. F., and Page, I. H.: The Assay of Anti Pressor Extracts of Kidney by in Vitro Destruction of Angiotonin, Federation Proc. **1**: 114, 1942.

26. Corcoran, A. C., and Page, I. H.: Effects of Renal Extracts Containing "Angiotonin Inhibitor" on Renal Blood Flow and Function in Normal and Hypertensive Dogs and Humans, Am. J. Physiol. **133**: 248, 1941.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Acting Secretary.

DEXTROSE (See New and Nonofficial Remedies, 1942, p. 418).

The following dosage forms have been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Dextrose 5% W/V in Distilled Water: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains dextrose, 5 Gm.

Dextrose 10% W/V in Distilled Water: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains dextrose, 10 Gm.

Dextrose 20% W/V in Distilled Water: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains dextrose, 20 Gm.

Dextrose 5% W/V in Physiological Solution: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains 5 Gm. of dextrose and 0.85 Gm. of sodium chloride-U. S. P.

Dextrose 10% W/V in Physiological Solution: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains 10 Gm. of dextrose and 0.85 Gm. of sodium chloride-U. S. P.

Dextrose 5% W/V in Ringer's Solution: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains 5 Gm. of dextrose, 0.7 Gm. of sodium chloride-U. S. P., 0.03 Gm. of potassium chloride-N. F. and 0.025 Gm. of calcium chloride-U. S. P.

Dextrose 10% W/V in Ringer's Solution: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains 10 Gm. of dextrose, 0.7 Gm. of sodium chloride-U. S. P., 0.03 Gm. of potassium chloride-N. F. and 0.025 Gm. of calcium chloride-U. S. P.

PHENOBARBITAL SODIUM (See New and Nonofficial Remedies, 1942, p. 470).

The following dosage forms have been accepted:

THE LAKESIDE LABORATORIES, INC., MILWAUKEE.

Ampuls Solution Phenobarbital Sodium and Benzyl Alcohol: 1 cc. and 2 cc. Each cubic centimeter contains 0.162 Gm. (2½ grains) of phenobarbital sodium and 0.02 Gm. of benzyl alcohol dissolved in propylene glycol.

PENTOBARBITAL SODIUM (See New and Nonofficial Remedies, 1942, p. 462).

The following dosage forms have been accepted:

THE LAKESIDE LABORATORIES, INC., MILWAUKEE.

Ampuls Solution Pentobarbital Sodium and Benzyl Alcohol: 1 cc. and 2 cc. Each cubic centimeter contains 0.162 Gm. (2½ grains) of pentobarbital sodium and 0.02 Gm. of benzyl alcohol dissolved in propylene glycol.

LYOVAC NORMAL HUMAN PLASMA (See New and Nonofficial Remedies, 1942, p. 482).

SHARP & DOHME, INC., PHILADELPHIA.

Vacule Ampul-Vial Lyovac Normal Human Plasma: Containing an amount (preserved with phenyl mercuric nitrate 1:25,000) to yield 50 cc. of restored plasma, packaged with a 50 cc. bottle of distilled water as a diluent (preserved with phenyl mercuric nitrate 1:100,000).

ISOTONIC SOLUTION OF SODIUM CHLORIDE (See New and Nonofficial Remedies, 1942, p. 425).

The following dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Physiological Solution of Sodium Chloride: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains 0.85 Gm. of sodium chloride-U. S. P. in distilled water.

Council on Foods and Nutrition

RECENT RESTRICTIONS ON THE SALE OF SUGAR IN THE UNITED STATES HAVE FOCUSED ATTENTION ON SOME OF THE NUTRITIONAL PROBLEMS ASSOCIATED WITH THIS COMMODITY. SOME RESTRICTION OF THE CONSUMPTION OF SUGAR MAY BE DESIRABLE FROM THE STANDPOINT OF PUBLIC HEALTH. THE CONSUMPTION OF SUGAR AND OF OTHER RELATIVELY PURE CARBOHYDRATES HAS BECOME SO GREAT DURING RECENT YEARS THAT IT PRESENTS A SERIOUS OBSTACLE TO THE IMPROVED NUTRITION OF THE GENERAL PUBLIC. THE COUNCIL DECIDED TO SUMMARIZE ITS VIEWS ON THIS SUBJECT AND HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

FRANKLIN C. BING, Secretary.

SOME NUTRITIONAL ASPECTS OF SUGAR, CANDY AND SWEETENED CARBONATED BEVERAGES

Sugar, like flour, is a highly processed food which is considered to be a staple item in the modern diet. The Council in 1939 authorized the publication by Cowgill [1] of a report entitled "The Need for the Addition of Vitamin B_1 to Staple American Foods." On the basis of the material reviewed in that report, the Council [2] adopted certain policies relative to restoration to processed foods of nutritive values lost in preparation. These policies later formed the basis for recommendations by the Food and Nutrition Board of the National Research Council, which in turn led to action taken jointly by the cereal industry and the government to make available and to promote the preferential use of the white flour and white bread which now are designated "enriched."

Accompanying tabulations (tables 1 and 2) contain comparative estimates of the thiamine provided by sample diets selected from the literature. These and other data indicate that modern diets have provided only from a third to a half of the amount of thiamine contained in earlier diets.

The report of Cowgill brought out certain facts which bear importantly on the subject of the present report on the significance of sugar in nutritional economy. Whereas cereal grains consumed in the form of undermilled flour, rich in thiamine, formerly contributed as much as 50 or 55 per cent of the calories of the average diet, the contribution of flour to the average diet of recent times has been only about 25 per cent. The place represented by the difference between the 50 or 55 per cent of all calories formerly contributed by flour, and the 25 per cent later contributed, has been taken by other foods and mainly by sugar.

LARGE CONTRIBUTION OF CALORIES AS SUGAR

The per capita annual gross consumption of sugar in the United States increased steadily from about 10 pounds (4.5 Kg.) in 1821 to 108 pounds (49 Kg.) in 1931. Since then this gross consumption has shown little change. The latest available and more accurate estimate, which corrects for industrial non-food uses of sugar, and that exported as part of processed fruit, condensed milk and other foods, places the present annual per capita consumption at about 85 pounds (38.6 Kg.). Even this amount represents 420 calories daily, or from 13 to 17 per cent of the 2,500 to 3,000 calories of an adult average diet.

Sugar as consumed in recent years, whether it originates from sugar cane or sugar beets, is for the most part highly refined sucrose. What vitamins or minerals may have been present in the cane or in the beets are almost completely removed in the processing of crystalline sugar. The finished product is practically chemically pure sucrose. Consumption of molasses, other syrups and brown sugar, compared to that of white sugar, is relatively small. Some inorganic salts can be found in them, but because of the nature of their preparation their content of thiamine is disappointing. Furthermore, not included in reports of the consumption of sugar are considerable amounts of corn starch and corn sugar (dextrose). These products are highly purified and as free from vitamins and minerals as crystalline sucrose.

1. Cowgill, G. R.: The Need for the Addition of Vitamin B_1 to Staple American Foods, J. A. M. A. **113:** 2146 (Dec. 9) 1939.
2. Council on Foods and Nutrition, Annual Meeting, J. A. M. A. **113:** 680 (Aug. 19) 1939.

These circumstances reveal that the increased use of sugar since the middle of the nineteenth century has carried responsibility of almost the same order of magnitude as the roller milling of wheat for the very great lowering of the thiamine content of the average diet. There also undoubtedly has occurred a comparable loss of nicotinic acid (niacin) in diets, although this is more difficult to estimate. Other foods than the cereal grains either contain little thiamine or are not consumed in large enough amount to contribute importantly to the daily dietary allowances of thiamine; therefore, if the average diet is to be made to provide allowances of thiamine (and niacin?) comparable to those provided by former diets, a point of attack almost as important as roller milled white flour is sugar.

INTERFERENCE WITH A SATISFACTORY SUPPLY OF THIAMINE AND OTHER VITAMINS

What could or should be done about sugar? It is technically possible to augment certain of the nutritive qualities of sugar, as was done with flour, by making restorative additions of desired nutrients. Or the aim could be at assuring a lower per capita consumption of sugar so that the contribution of sugar calories, which carry insignificant amounts of vitamins and minerals, would be curtailed to what it was before sugar became abundantly available. Before exploring either of these possibilities, other reasons for concern about the recent level of consumption of sugar may be considered.

Biochemical investigation has revealed that the oxidative activities of tissue cells, whereby energy is released from foods, depend on the presence in the cells of respiratory enzyme systems. It also has been shown that the vitamins thiamine, niacin and riboflavin represent indispensable constituents of the major enzyme systems concerned with oxidation of carbohydrate (dextrose). When deficiency exists in the supply of thiamine the oxidation of sugar is impeded to such a degree that products of its incomplete oxidation can readily be demonstrated in the blood. If the tissues possess ample reserves of vitamins no harm is done by ingesting carbohydrate, but, since sugar makes no contribution to such reserves, the vitamins required must come from other foods. It follows that when the vitamin poor constituents of a diet sufficiently outweigh the vitamin providing constituents, a situation is created from which deficiency disease will logically result. Such a situation can readily develop.

TABLE 1.—*Analysis of English Diets for Adult Men* *

	Calories	Protein, Gm.	Calcium, Gm.	Iron, Mg.	Vitamin A, International Units	Ascorbic Acid, Mg.	Thiamine, Mg.
Middle class diet today	3,310	110	0.6	12.3	5,170	70	1.2
Poverty diet today	3,000	78	0.3	8.4	520	15	0.66†
Middle (artisan) class diet, 1826	2,130	125	0.2	45	1,220	0	1.77
Navy ration, 1811	2,750	110	0.7	18	2,600	0	3.15
St. Bartholomew's Hospital, 1686	2,600	80	1.9	12	5,100	10	1.89
Meat-eating classes, fifteenth century	3,650	250	1.3	50	7,000	?	3.30
Peasant diet, fifteenth century	3,300	140	1.2	21	1,700	10-20	4.20
Recommended by Food and Nutrition Board ‡	3,000	70	0.8	12	5,000	75	1.8

* From J. C. Drummond's "The Englishman's Food," London, J. Cape, 1940.

† A diet containing as little thiamine as this (0.22 mg. per thousand calories) provokes symptoms of severe athiaminosis. See Williams, Mason, Smith and Wilder.[3]

‡ For moderate activity.

Experiments were performed by Williams and his associates[3] with diets constructed to simulate the hypothetic average American diet. That is to say, the calories from unenriched white flour contributed 30 per cent of all the calories and those from sugar and other vitamin free foods 10 and 5 per cent, respectively. These diets, fed for several months, provoked the symptoms and chemical disturbances of athiaminosis.

3. Williams, R. D.; Mason, H. L.; Smith, B. F., and Wilder, R. M.: Induced Thiamine (Vitamin B_1) Deficiency and the Thiamine Requirement of Man: Further Observations, Arch. Int. Med. **69**: 721 (May) 1942.

The "average" American diet thus appears to be inadequate except when its foods, other than its content of flour and sugar, are very wisely chosen. The situation is one in which the necessity for discriminating selection of foods is greater than can be viewed with equanimity. Unless all flour and all bakers' bread becomes enriched, provision of thiamine and niacin will continue to be less than enough to provide an adequate factor of safety, and even with flour and bread enriched the large amount of sugar probably interferes with a content in the average diet of satisfactory amounts of thiamine and several other vitamins and minerals.

TABLE 2.—*Low Income American Diets of 1926 and 1851 (for Adult Men)*

Working Man's Diet of 1926 *	Gm.	Low Income Diet of 1851 †	Gm.
Bread and cereals	309	Flour	336
Sugar and sweets	61.5	Sugar	55
Fats	53	Butter	27
Lean meat	225	Meat	192
Milk	278	Milk	50
Potatoes	210	Potatoes	400
Other vegetables and fruits	35.6		

* Calculated from data in appendix O, Cummings, R. O.: The American and His Food, ed. 2, Chicago, University of Chicago Press, 1941. Such a diet provides approximately 2,740 calories, 92 Gm. of protein, 0.61 Gm. of calcium, 13 mg. of iron, 1,774 international units of vitamin A, 62.5 mg. of ascorbic acid and 1.4 mg. of thiamine.

† Calculated from a fifth of the values given in Weekly Food Budget for a Family of Five, Philadelphia, 1941, appendix F, Cummings, R. O.: The American and His Food. Such a diet provides approximately 2,306 calories, 92 Gm. of protein, 0.26 Gm. of calcium, 24 mg. of iron, 1,224 international units of vitamin A, 45 mg. of ascorbic acid and 2.53 mg. of thiamine. The bread winner of the family probably received 2,700 calories. If he did, values for all nutrients should be increased by about 20 per cent, thus raising the allowance of thiamine to 3.0 mg.

‡ No allowance made for loss of thiamine in handling and cooking foods. Such losses are believed to lower the thiamine content of the foods as ingested by as much as 20 per cent.

USE OF SUGAR WITH OTHER FOODS ENCOURAGED

The suggestion of enriching sugar as is done with flour, by adding the vitamins essential for the oxidation of carbohydrate, is not regarded with favor. Critics of enrichment of flour have objected that many vitamins are removed from flour in its milling, and only thiamine and niacin are restored. The apprehension has been expressed that such imbalanced restoration may be harmful. In the case of flour this criticism can successfully be answered. The other B vitamins of wheat appear to be more evenly distributed through the grain and thus are lost much less in milling. However, in the case of sugar only traces of vitamins survive the process of refining.

The suggestion has been offered that sugar could be made more nutritious by combining it with the minerals and vitamins of milk.[4] This could be accomplished by enriching it with deproteinized whey, which would provide the vitamins of the entire B complex and also minerals. Also if sugar could be always used only as a means of making highly nutritious foods like milk or whey more appetizing, much less odium would attach to it than does. Some candies contain appreciable amounts of powdered milk. Other candies carry nuts. Some cake is rich in egg and milk. Malted milk and chocolate flavored skimmed milk drinks provide considerable nutritive value from the milk or skimmed milk which they contain. When sugar is consumed it would be well if it was taken in the form of mixtures such as these that bear important nutritive values. But even here one is essentially "diluting with calories" the food which is sweetened.

Accurate information is not available as to what proportion of the total use of sugar is for use with other foods. However, much sugar is consumed in candies, some prepared desserts and sweetened beverages, which carry nothing of nutritional significance except sugar. Estimates of the consumption of candy show that it may be as great as 16 pounds (7.3 Kg.) per person each year. Much of this candy is consumed by children and adolescents. Figures are available on sales of sweetened beverages.[5] They indicate that manufacturers of such beverages

4. Wilder, R. M.: Nutrition in the United States: A Program for the Present Emergency and the Future, Ann. Int. Med. **14**: 2189 (June) 1941.

5. N. W. Ayer & Son, Inc.: Personal communication to the Council.

produced over eighteen billion 6 ounce bottles of soft drinks in 1939. It is also admitted that since 1939 the consumption of soft drinks has increased by from 20 to 30 per cent. From such data it appears that the per capita consumption of soft drinks must be in the neighborhood of more than three bottles a week per capita. According to data published by the Foodstuffs Division of the U. S. Department of Commerce [6] the amount of sugar contained in "beverages, nonalcoholic" during 1939 constituted only 2.4 per cent of that used for all purposes. However, this figure does not include sugar added to beverages at the point of sale; and, on the basis of the data already mentioned concerning sales of sweetened beverages, the amount of sugar thus used figures out at approximately 12 per cent of the total. It seems obvious that, regardless of the method used to estimate the amount of sugar consumed as soft drinks, one obtains a result that is definitely undesirable from the standpoint of the nation's nutritional welfare.

WAYS AND MEANS OF LOWERING CONSUMPTION

The alternate approach to the nutritional problem created by sugar would be through effort directed at lowering its consumption. Because of war conditions this now is being done. Sugar rationing and its benefits to health will probably remain in effect for the duration of the war. The resulting benefit will be greater if, in rationing, priority is given to use of sugar as a sweetening agent for more nutritious foods. This has been recommended. The Food and Nutrition Board of the National Research Council has taken the position (1) that even a substantial curtailment of sugar is likely not to injure the nutrition of the American people, while other available foods can replace calories eliminated by sugar restriction; (2) that the use of sugar where small percentages make the more nutritious foods, such as bread and dairy products, more appetizing deserves high priority and should not be restricted; (3) that the use of sugar for preserving or flavoring other foods as in canning should be favored, and (4) that very considerable reduction of sugar in products which carry no other nutrients in considerable amounts, such as candy and soft drinks, would certainly not be deleterious to the nutrition of the public. The Council on Foods and Nutrition concurs in these views, which regrettably have not as yet been adopted in official rulings on the allocation of sugar.

Physicians presumably will continue to advise against the use of sugar between meals. Such advice should logically apply to the consumption of sweetened beverages as well as to the use of candy. Likewise action may be taken, as has been done with alcoholic drinks, to control the advertising of products, like candy and soft drinks, which tend to be used excessively by many persons to the detriment of health. There is merit also to the suggestion of Roberts [7] that attempts be made through school boards to place a zone around school buildings in which the sale of candy and soft drinks would be prohibited.

Current views as to the exact cause of dental caries are numerous and divergent. Published summaries of findings and conclusions relating to the causes and control of this disease [8] reveal that many investigators attribute harmful effects to the excessive consumption of highly refined carbohydrates. Without question, overuse of sugars and starches will lessen the ingestion of foods which are needed for the maintenance of normal nutrition. Faulty nutrition is not desirable from the standpoint of the teeth or of the other body tissues. It is therefore to be expected that dentists as well as physicians will continue to advise against excessive use of sugar in the diet.

EXCESSIVE USE OF SUGAR BY CHILDREN AND WAR WORKERS DEPLORED

The figures given for the per capita annual consumption of sugar, and those for sales of carbonated beverages, are average figures. People, however, do not eat averages, and diets vary from those containing very little to those containing very much of any item, be it butter, bread or milk. A disproportionate amount of candy and soft drinks is consumed by children, and the advertising of candy and soft drinks usually makes a play for sales to children. The Council has received numerous inquiries from teachers and others asking for guidance in the problem presented by sales of sweetened carbonated beverages in the schools. The anxiety expressed in such letters has mostly been on the score of the caffeine content of some of these beverages. The use of caffeine by children is not considered wise, but equally undesirable, as the writers of some of the letters have sensed, is the fact that the use of sweetened drinks and candies displaces the use of other foods. The sweetened drinks tend to replace milk, and candies the solid foods—meats, vegetables, fruits and grain products—that make up a nourishing meal.

It is obvious that a school lunch suffers gross deterioration when the beverage chosen in place of milk is a solution of sugar in flavored water. It also is generally conceded that excessive sugar eating between meals, or sugar eaten in smaller amounts within an hour of the regular mealtime, impairs the appetite for food at meals.

Another place where a disproportionate consumption of sugar in the form of candies and sweetened carbonated beverages may lead to incalculable harm is the industrial plant engaged in war production. The Committee on Nutrition in Industry [9] has reported that, in the great majority of these plants, food dispensaries, where they exist, are operated on the "we give the men what they want" policy, and that candy, pies, cakes and soft drinks are apt to constitute too great a proportion of their stock. The same report contains the following quotation from Haggard and Greenberg,[10] who emphasized that food taken between meals is an integral part of the diet as a whole. They stated:

"The energy content of the food given at two between meal feedings (in industrial plants) might amount to 300 to 400 calories and thus constitute 15 per cent of the total intake of food. It was further evident that the diets of many of the employees were actually deficient in vitamins and minerals, or verged on such deficiency. Supplementary feedings with foods containing only carbohydrate further exaggerated these deficiencies. This feature of supplementary feedings constitutes the only valid criticism against eating 'between meals,' which otherwise serves to alleviate much tiredness and decreased productiveness in factory workers."

To obviate such criticism of between meal feedings the food selected, including beverages, should make satisfactory provision of minerals and vitamins as well as of calories.

Between-meal consumption of sugar in the armed forces is less disadvantageous than it is in industry, because the rations in the army and the navy are closely supervised and provide a liberal supply of vitamins. However, even with soldiers and sailors supplied with satisfactory rations, the tendency to say in effect "Let's give the boys what they want. It isn't going to hurt them," if allowed to go to the extent of permitting indiscriminate use of soft drinks and candy, will undermine efficiency. Indiscriminate and uncontrolled supply of poor food for between-meal eating cannot be condoned with impunity anywhere.

COUNCIL OPINION

In view of the several considerations here recounted, it is the opinion of the Council that the present restrictions in the use of sugar will help improve the nutritive quality of American diets. From the health point of view it is desirable especially to have restriction of such use of sugar as is represented by consumption of sweetened carbonated beverages and forms of candy which are of low nutritional value. The Council believes it would be in the interest of the public health for all practical means to be taken to limit consumption of sugar in any form in which it fails to be combined with significant proportions of other foods of high nutritive quality.

6. Sugar and Molasses Trade of the United States in 1939, Prepared in the Foodstuffs Division of the U. S. Department of Commerce, February 1940.

7. Roberts, Lydia J.: Cutting Down on Candy, Hygeia **2**: 411 (July) 1924.

8. American Dental Association: Dental Caries, ed. 2, 1941.

9. Committee on Nutrition in Industry, National Research Council: The Food and Nutrition of Industrial Workers in Wartime, National Research Council Reprint and Circular Series, No. 111, April 1942.

10. Haggard, H. H., and Greenberg, L. A.: The Selection of Foods for Between Meal Feeding in Industry, J. Am. Dietet. A. **17**: 753 (Oct.) 1941.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 7, 1942

THE SUPPLY OF PHYSICIANS

On October 29 Senator Claude Pepper of Florida, chairman of the Subcommittee on Manpower of the Committee on Education and Labor of the United States Senate, made public release of the report of his subcommittee on the supply of physicians for the armed forces and the civilian population. Thus a subject which has been given for some years careful and sustained consideration by some of the best informed and capable minds in the field concerned was thrown into the arena of public discussion. The evidence is lacking that representatives of the personnel divisions of the Army and Navy Medical Departments, the Procurement and Assignment Service for Physicians, Dentists and Veterinarians or the various agencies of the American Medical Association were called by the subcommittee for information before it offered to the people its views on the subject. Indeed the statement issued by Senator Pepper's committee indicates a lack of information as to what has already been accomplished by the agencies concerned in their endeavors to meet the needs of the situation. For instance the report says,

> It is the committee's opinion that an over-all civilian authority should be established at once to supervise and control the drafting and recruiting of doctors. Until this authority is actively functioning, no recruiting of doctors for the armed services should be permitted.
>
> This authority should immediately conduct a census of all doctors, both those already serving in the armed forces and those still in civilian life. This census should be careful and detailed. It should include a study of the distribution of physicians in civilian communities so that we may know at once what are the minimum needs of each area for medical care and whether these needs are now fully met, oversupplied or undersupplied in both optimum and minimum terms. We should have firmly fixed in mind the irreducible minimum of medical care needed to prevent disease and epidemic in civilian America, including war plant areas.

Had Senator Pepper's committee made inquiry, it would have discovered that the inventories proposed were made by the American Medical Association in 1940 and by the Procurement and Assignment Service in 1941 and that studies are made week by week of the distribution of physicians in civilian communities as the committee proposes. What could the committee have had in mind in proposing that recruiting of physicians for the armed forces be halted regardless of the needs of those forces for medical services? The least that the nation can do for those who offer their lives in combat is to provide them with the utmost that medicine can offer for the alleviation of the wounded and the prevention of unnecessary death.

During the past month articles have appeared on this subject by Dr. Thomas Parran in *This Week* Magazine, by Michael M. Davis in *Harper's* and by an unknown editorial writer in the New York *Times* supporting the proposal that some federal agency be given authority to redistribute the medical profession. Mr. Michael M. Davis expresses the hope that "the Public Health Service will have been given the long delayed authority to act as well as study" by the time his article appears in print. Dr. Parran says in his article:

> As a first step toward making the most of what we shall have left when the armed forces have been supplied with doctors and nurses, it would seem advisable for the War Manpower Commission to ration medical manpower just as the Office of Price Administration rations other essentials of civilian life; so that everybody may have something instead of some people having nothing.

Certainly the medical profession should know now that such forces seem to be urging regimentation of the medical profession by a federal agency. They seem indeed to be demanding authority over the medical profession quite beyond the range of any activities granted by the Congress of the United States to the War Manpower Commission or any other agency over any other profession or trade.

Under the auspices of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians a meeting has been called for this week in Washington to which representatives of all of the agencies intimately concerned with this problem have been invited. From this meeting should come positive action leading toward solution of some of the difficult problems that have been raised. In the meantime there might be a truce on the launching of some of the peculiar proposals that emanate from uninformed sources as a means of solving these problems. The taking of women physicians into the Army, as is proposed in one place, will certainly not make available more physicians for civilian communities. The utilization of interns and residents for the care of the civilian population, as has been proposed elsewhere, would merely deprive the Army of the physicians in the age group most needed. Furthermore, there is no evidence that the doctors who have hesitated to enlist in the Army and Navy Medical Departments would be any happier under the egis and control of the United States Public Health Service. The professional and intellectual attainments of physicians who have offered themselves to the Army and Navy, taken as a whole, are of the finest quality; is

there any reason to believe that these physicians would be more attracted to any of the nonmilitary federal services that employ physicians?

The Procurement and Assignment Service was created by the President of the United States and charged with consideration of the task of meeting the needs for physicians of the armed forces, industry and the civilian population. It has approached the problem scientifically, with accurate inventories of physicians available and needed and with due regard for the health of all the people of the United States. At the same time the concept that the winning of the war must be our first objective has not been overlooked. Actually what has been done in relationship to medical services might well serve as a model for the other activities of the War Manpower Commission.

EPIDEMICS AND SHIFTS IN WARTIME POPULATION

This war has already created more shifts of masses of population than have ever occurred before in human history. The effects are not all apparent as yet nor will they be even on the cessation of hostilities. However, one important aspect of this collateral effect of total war has been discussed recently by Maxcy,[1] namely the consequences of these changes on the problem of infectious disease.

The alterations in distribution of population and conditions of living have been brought about mainly by movements of three different kinds: (1) migration of able bodied men of military age from every walk of life and section of the country into induction and training centers of the Army and Navy, (2) evacuation of civilian population groups from areas of military importance and (3) migration of workers and their families into boom towns adjacent to military and industrial establishments. Each has its peculiar epidemiologic implications. As far as the mobilization of the armed forces is concerned, the experiences in this war have been much more favorable than in the last. This may be due, in part at least, to compliance with the principles of gradual mobilization urged by Zinsser[2] shortly before his death. In any event, Maxcy feels that the period of greatest danger from the common infectious diseases for the mobilized military personnel would seem to be past.

There has been little experience in this country regarding the evacuation of civilian population groups from areas of military importance. The resettlement of the Japanese families now in process is scarcely large enough to offer a fair test. In England, however, during the first week of September 1939, when war was imminent, more than one and one-fourth million mothers, children and cripples were removed principally from urban areas to rural homes. Overcrowding of living conditions was inevitable. Although the effects are still not entirely clear, it is known that the incidence of diphtheria and scarlet fever actually decreased two thirds and poliomyelitis one third during the four months immediately following the evacuation from London as compared with the same quarter in the previous year. The experience with the other common communicable diseases was similar. However, removal of some 30 per cent of the children under 15 from evacuation towns, coupled with closure of the schools, was followed by a fall of 40 per cent or more in the rate of diphtheria among the children who remained, compared with a fall of 9 per cent in the "neutral" or unchanged areas, by the first quarter of 1940. Secondly, the influx of children drawn from these towns to reception areas with consequent increase in their population at ages under 15 by about 30 per cent was followed by an immediate rise of diphtheria among the native children amounting to 60 or 70 per cent as measured by notifications, but the rate in the whole population of children in these areas (native and visitor) declined again within six months to its original level. In any event the epidemiologic picture was much better than could have been anticipated.

In the United States the third kind of population movement, Maxcy says, has been most important up to now—the migration of labor. It has been estimated, for example, that six hundred thousand workers will leave the farm in 1942. Thus, in a sense, the rural districts have become evacuation areas and certain towns and cities have become reception areas. The movement has been one of adults to a greater extent than of children. The migratory war workers have been living in tents, trailers, dormitories, barracks, warehouses, basements and attics. Families have shared homes, apartments, even beds. Crowding in many areas has become intense. The effect on epidemiologic disease of this crowding, however, has varied.

In the case of Halifax, Nova Scotia, the prewar stabilized population of about sixty thousand increased rapidly with the onset of war. The epidemiologic implications were evident—crowding, a shifting immunity status and the possibility of the introduction of new strains of parasitic micro-organisms from Europe or elsewhere. For ten years previous to the war, diphtheria had prevailed in that city at a low level and there had been no active campaign to immunize the child population. Indeed, the Schick surveys made in 1940 and 1941 indicated that 80 per cent of selected groups of adults, as well as children, were susceptible. In September 1940 cases of diphtheria of unusual severity appeared. In the civilian population 588 cases were reported, and 303 cases occurred in the military forces. Aggressive measures were undertaken and the situation improved. This exemplifies the experience of a city in which the epidemiologically expected happened.

1. Maxcy, K. F.: Epidemiologic Implications of Wartime Population Shifts, Am. J. Pub. Health **32**: 1089 (Oct.) 1942.
2. Zinsser, Hans: On the Medical Control of Mobilization, Mil. Surgeon **87**: 214 (Sept.) 1940.

In the Norfolk-Newport News area, however, the same rapid development of industrial, military and naval establishments occurred with similar crowding. In fact, the crowding was so severe that rationing of water was necessary for a number of months. Nevertheless, significant increase in infectious diseases was not reported up to the time of Maxcy's report. By way of explanation for this unexpectedly favorable epidemiologic result, Maxcy suggests that the population shifts in this country have occurred with gradually accelerating tempo and there have not been as yet convulsive evacuations such as those which occurred when the countries of Europe were engulfed in war with lightning-like rapidity. Furthermore, the start of these population shifts was made from a position "more favorable than has ever been realized before by any great nation in the health and welfare of its people."

The epidemiologic advancement is especially significant with regard to the intestinal infections, such as typhoid and dysentery, which have been minimized because of improved environmental sanitation and the decreased frequency of healthy carriers of intestinal pathogens. Furthermore, artificial immunization against smallpox, diphtheria and typhoid now protects a far larger proportion of the people than previously. Even the venereal diseases have received extensive attention and constitute a special problem on which intensive efforts already have been expended. There remain, Maxcy says, certain respiratory infections whose spread cannot be prevented and against which there are no means of artificial immunization. Two factors, perhaps, explain why this group has not reached epidemic proportions in spite of epidemiologically favorable conditions. In the modern United States, few communities can any longer consider themselves isolated in any real sense of the word. Exposure to common infections must therefore be at an earlier age, and relatively few persons escape attack in childhood. During this period an increasing proportion of the population have acquired better habits of personal hygiene. Promiscuous spitting, sneezing and coughing in public places have been reduced. The use of paper drinking cups has become popular.

The favorable epidemiologic picture in the United States is a credit to public health authorities but may constitute a fortunate accidental occurrence the explanation for which is not yet apparent. As Maxcy points out, the potential hazards in the immediate future would seem to be principally from viruses and bacteria with which we are already familiar and especially those which are parasites of the human respiratory tract. Today the human race is repeating many of the mass epidemiologic experiences which were experimentally observed in mice by Major Greenwood and his colleagues [3] over a period of many years.

3. Greenwood, Major; Hill, A. B.; Topley, W. W. C., and Wilson, J.: Experimental Epidemiology: Medical Research Council Special Report Series, No. 209, London, His Majesty's Stationery Office, 1936.

Current Comment

HEIGHT AND WEIGHT OF TORONTO SCHOOL CHILDREN

An exhaustive height and weight survey of Toronto elementary school children [1] carried out by a group of Canadian medical and statistical investigators has recently appeared under the auspices of the Dominion Bureau of Statistics at Ottawa. The survey involved measurements of about 78,000 children in comparison with about 59,000 measured in 1923. A serious attempt was made to disentangle hereditary and environmental factors involving growth. However, the report states that this has not been entirely satisfactory; there is no incontrovertible evidence to disprove the possibility that children of relatively prosperous parents are taller because their parents, on the average, are taller, as well as through superior environment. The results of the study agree with those obtained in similar analyses of heights and weights of school children elsewhere. The tendency found in British and American surveys toward an increase in average height and weight of from 2 to 5 per cent in a generation is also demonstrated by the Toronto figures. The report points out the desirability of integration of these results with work done on nutrition, since it is important to establish precisely the range within which good or poor nutrition can affect heights and weights. This is especially vital in wartime; its long term importance is stressed by the surprising correlation observed between backwardness at school and poor stature.

SUICIDES DROP IN WAR

Certain psychologic effects of the war plus the increased standards of incomes seem to be responsible for the fact that the death rate from suicides among the policyholders of the Metropolitan Life Insurance Company, after reaching an exceptionally low point in 1941, has dropped sharply during the present year. This condition is not peculiar to the United States, since the suicide rate in England has fallen consistently from 1939 to 1941. The suicide rate among males in 1941 was 15 per cent below that of 1939. Such German figures as are available likewise show a fall in the suicide rate of 30 per cent from 1939 to 1941. In the last war the downward trend began in 1916 and continued through 1920 with a decline of 20 per cent between 1917 and 1918. The Statistical Bulletin of the Metropolitan Life Insurance Company for September, from which these facts are taken, suggests the following explanation of this decline:

> A national calamity acts as a uniting force. The needs of the country become of paramount importance, and the petty interests and difficulties of the individual tend to be forgotten in the urgent desire to aid the nation in a time of crisis. Many sensitive individuals whose lives seem to lack purpose become absorbed in rallying to the defense of their country. Men live for the present and worry less about the future, especially as, during war, new channels of activity are opened. The demands of the military forces for material cause a sudden spurt in production and money incomes. Thus economic and psychological forces work together in the same direction for the benefit of the nation's state of mind.

1. A Height and Weight Survey of Toronto Elementary School Children, 1939, Department of Trade and Commerce, Dominion Bureau of Statistics, Social Analysis Branch, Ottawa, Canada, 1942.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

ARMY

SCHOOL FOR MEDICAL DEPARTMENT TECHNICIANS

The School for Medical Department Technicians, William Beaumont General Hospital, El Paso, Texas, is designed to furnish the Medical Department of the U. S. Army with a highly trained group of technicians. Each of seven divisions of this school—laboratory, dental, medical, pharmacy, surgical, veterinary and x-ray—is allotted a certain number of students monthly.

The so-called specialty groups, which are laboratory, pharmacy, dental, x-ray and veterinary, require three months to complete these courses, while the medical and surgical groups complete the courses in two months. The specialty sections have prerequisite requirements as regards educational background, these being high school graduate or college student or graduate. The medical and surgical sections require only a common school education. Following are some of the requirements for receiving a certificate of proficiency in the various sections.

LABORATORY STUDENTS

The laboratory student must be familiar with the use and care of the laboratory equipment and be able to prepare and care for solutions and perform routine urinalysis, blood chemistry, gastric analysis and certain special determinations, such as alcohol in the blood and urine and the sulfonamides in blood and urine. He must be able to prepare culture mediums and inoculate culture mediums in laboratory analysis; be able to stain and recognize the characteristics of pathogenic organisms, perform water and milk analysis and type pneumonia; be able to perform the Kahn test, the two tube Kolmer test and the colloidal gold and Wassermann tests; be able to do routine blood types, determine bleeding, clotting and coagulation time and recognize some of the immature cells, and be able to type blood and cross match for transfusions, determine sedimentation rates, make reticulocyte and platelet counts, recognize those parasites which are found in man, identify the different types of malaria, Leishmania, trypanosomes and filaria and identify some of the insects which are injurious and related to diseases of man.

DENTAL LABORATORY TECHNICIANS

The dental laboratory technician must be able to construct simple or routine prosthetic appliances and related work. He must be able to do bridge work, assembly, soldering and finishing; make dentures, both full and partial, and produce castings, waxing, casting and finishing, wrought clasps and lingual and palatal bar bending. No operative dentistry is being taught nor is chair assisting a part of the course in this section.

PHARMACY STUDENTS

The pharmacy section student on graduation must be proficient in handling the equipment and glassware of this section. He must be able to care for the drug stock; dispense routine stock prescriptions to the wards; do simple pharmaceutical arithmetic, including metric system, ratio and proportion, and be conversant with the U. S. Pharmacopeia, the National Formulary and other authorized textbooks. In addition, he must be able to dispense narcotics and alcoholic preparations and maintain a record book of these drugs.

X-RAY TECHNICIANS

The x-ray technician is required to maintain the register and filing of films; prepare all necessary solutions; take dictation and be familiar with the phrasecology of radiography; be able to place patients in position for any kind of roentgenogram; assist in fluoroscopy, and be able to prepare and use the latest localization apparatus. He must be familiar with the manipulation of x-ray machines, both portable and stationary. He must also become familiar with the minor defects that arise in these machines and know how to effect minor repairs.

VETERINARY TECHNICIANS

The veterinary section students are divided into two classes, the medical and surgical veterinary technicians and the meat and dairy hygienists.

The medical and surgical veterinary technician is required to be familiar with the care and use of the instruments and apparatus of the veterinary dispensary; be able to take temperature, pulse and respiration of the animals; be able to care for and maintain a veterinary ward; prepare and feed special rations; administer medicines, orally and hypodermically; apply bandages and dress wounds; give enemas; be proficient in the simple methods of restraint of animals; prepare and care for all the records of the clinic, and prepare the animals for and assist at operations.

MEAT AND DAIRY HYGIENISTS

The meat and dairy hygienist must be familiar with all the interpretations of federal and army regulations pertaining to meat and dairy products; he must be able to make inspections of meat, including fish and poultry, and prepare routine records and inspection reports; be familiar with the sanitary requirements of the personnel, stock rooms, docks and trucks used in the storage and handling of foods.

SURGICAL ASSISTANTS

The graduate of the surgical section is required to be familiar with all the technics of the medical technician, but in addition he must be able to perform the duties of an assistant in the operating room and to work in the surgical ward and dressing room or surgical dispensary. He must have a thorough knowledge of antisepsis, asepsis and methods of sterilization.

MEDICAL TECHNICIANS

The medical technician must be able to take temperature, pulse and respiration, prepare and serve simple ward diets; be able to care for and maintain an ordinary ward, and be familiar with the cleansing and disinfection of ordinary ward equipment and sterilization of ward instruments. He must be able to give enemas and baths to patients; administer routine medication and hypodermics; act as a nurse in acute infectious and contagious cases; do catheterizations; maintain and operate special equipment of a medical ward, such as oxygen tents and apparatus for intravenous injections and hypodermoclysis, and recognize and report on the condition of patients.

FURTHER WORK

This school is designed to care for eight hundred students. Each of the specialty sections accommodates from fifteen to thirty students per class and each has three classes: beginners, intermediate students and advanced students. The medical and surgical sections have a capacity of one hundred students each and receive two months' instruction. During the first month, students in the two sections take the same courses. During the last month students in the medical section finish training as aids in the medical service of William Beaumont General Hospital, while students in the surgical section receive two additional

weeks of training in their specialty, doing practical work in the hospital during the remaining two weeks.

About 10 per cent of students have been unable to complete the course—a small percentage considering the many walks of life from which these students come.

COMMISSION HUNDREDS IN MEDICAL ADMINISTRATIVE CORPS

The four hundred and eighty soldiers who graduated on October 17 from the Medical Replacement Training Center Officer Candidate School at Camp Barkeley, Texas, formed the largest class ever to be commissioned in the Medical Administrative Corps of the Army Medical Department. Col. Frank B. Wakeman of the Surgeon General's Office, Washington, D. C., delivered the principal address. Brig. Gen. Roy C. Heflebower, commandant of the Medical Replacement Training Center and of the Officer Candidate School, presented the diplomas. The commissioning of trained officers in the Medical Administrative Corps is in line with War Department policy of relieving army doctors and dentists of administrative and training duties and assigning them to active medical work with field forces.

MEDICAL SERVICE DURING MANEUVERS

The evacuation hospital unit comprising physicians from City Hospital on Welfare Island, New York, was commended by Lieut. Gen. Walter Krueger, commanding the third army in October, for its efficiency and morale in handling more than 2,600 cases during recent maneuvers in Louisiana. Among these cases were 250 major operations performed in the field under canvas. The evacuation hospital is in command of Lieut. Col. Paul K. Sauer, formerly chief of the surgical staff at City Hospital, New York. The chief of the medical service is Lieut. Col. Philip G. C. Bishop and the chief of the laboratory service, Capt. Eugene Roberts.

COURSES IN NEUROLOGIC SURGERY FOR ARMY DOCTORS

Twenty-five U. S. Army medical officers from various parts of the United States began a course of training in neurology and neurologic surgery at the University of Illinois College of Medicine, Chicago, September 28. Similar groups of army officers will be trained during the next few months. The course includes laboratory, clinical and lecture work at the Neuropsychiatric Institute at the university and also clinical work at Cook County Hospital. The University of Illinois School of Medicine, Chicago, and Columbia University College of Physicians and Surgeons, New York, were the only schools chosen, according to the Chicago *Daily News*, for the special training of army officers in neurologic surgery.

NORTH CAROLINA EVACUATION HOSPITAL IN TRAINING

The evacuation hospital unit organized at Charlotte, N. C., by Dr. Addison G. Brenizer, reported for a period of training at the Lawson General Hospital, Atlanta, Ga., October 25. The one hundred and three nurses, twenty-five of whom are from Charlotte, will report there soon. The unit will also have three hundred and ninety enlisted men, including pharmacists, x-ray laboratory technicians and others trained in special work.

CHICAGO BEACH HOTEL TO BECOME HOSPITAL FOR AIR FORCE

The Chicago Beach Hotel, on Hyde Park Boulevard, Chicago, has been taken over by the Army and is being remodeled for use as a hospital for the air forces technical training commands. The hospital will care for students in the new army air forces radio school, with headquarters in the former Stevens Hotel on Michigan Avenue, as well as those in other air forces schools in this area. The Chicago Beach Hotel was acquired through court order in the same manner in which the Stevens and Congress hotels, the Coliseum and other properties were taken over for the schools in Chicago. Col. Joseph J. Mack, executive officer of the hospital, is reported to have said that all rooms in the former hotel will become rooms for patients containing two or three hospital beds, except those on the ground, mezzanine and third floors. The ground floor will become a receiving room for patients, the trunk room a medical supply room, the medical detachment personnel will have their mess hall in the former dining room and cocktail lounge at the south side of the hotel, and the large lounge off the main lobby will become a mess hall for patients.

PROMOTIONS, TRANSFERS AND REINSTATEMENTS AS SOURCES OF RECRUITMENTS

The War Department issued an administrative memorandum on October 15, referring to a recently issued Civil Service Commission departmental circular, which pointed out to heads of departments and independent establishments the value of internal promotion, transfer and reemployment as devices for solving the manpower shortage on the war program. The War Department heartily endorsed the point of view expressed in the Civil Service Commission departmental circular, reaffirmed its long established policy in encouraging the use of present government personnel in filling responsible positions and urged personnel officers to take every possible action to extend this program through the service. The War Department further stated that internal promotion, transfer and reemployment practices, when used in conjunction with adequate in-service training programs, will answer a large portion of the present personnel needs of the service.

MEDICAL TRAINING CENTER BUYS DEFENSE BONDS

The headquarters of the Medical Replacement Training Center, Camp Barkeley, Texas, Brig. Gen. Roy C. Heflebower, commanding, announced on October 19 that six of the training battalions had achieved 100 per cent participation in the purchase of war bonds by the pay allotment plan and that a total of 20,217 bonds, with a maturity value of $1,248,180, had been sold at this station to date.

ARMY PERSONALS

Lieut. Col. Alvin L. Gorby, formerly chief of Organization Branch, Plans Division, Office of the Surgeon General, has succeeded Col. Albert W. Kenner as armored force surgeon at Fort Knox, Kentucky. Col. Governeur V. Emerson, chief of the surgical service, Letterman General Hospital, San Francisco, has been transferred to new duties.——Lieut. Col. Albro L. Parsons, M. C., U. S. Army, for several years executive officer at the Medical Field Service School at Carlisle Barracks, has been retired from active service, effective October 31, on account of disability incident to the service. Colonel Parsons served in the first world war and later as a member of the United States military mission to Berlin, and in the Philippines and Alaska, and was decorated by the king of Greece and by the king of Yugoslavia.

Major Chester S. Fresh, clinical assistant in medicine at the Louisiana State University School of Medicine, New Orleans, has been made commanding officer of the Station Hospital at Grenier Field, Manchester, New Hampshire.

Lieut. Col. George E. Armstrong, M. C., U. S. Army, assistant commandant and school director of the Medical Replacement Training Center Officer Candidate School, Camp Barkeley, Texas, has been promoted to the rank of colonel. Colonel Armstrong in the first world war was an enlisted man. He studied medicine after the war, graduating at the University of Indiana in 1925, in which year he was commissioned in the regular army following an internship at Letterman General Hospital, San Francisco.

CIVILIAN DEFENSE

THE CIVILIAN EVACUATION PROGRAM

The Office of Civilian Defense and the Office of Defense Health and Welfare Services have been working on a general program of evacuating civilians and maintaining them in reception areas in case of air raids or other enemy action. A joint committee from these offices has published Bulletin No. 1 and Evacuation Bulletin No. 2, which cover the policies and principles of the civilian evacuation program, the basic problem relating to planning for the voluntary evacuation of designated groups of civilians, the making of surveys to discover the suitability of communities for reception in relatively safe sections of the country, and arrangements for the supplementing services and facilities during removal and after relocation. Evacuation Bulletin No. 2 does not cover detailed plans for emergency shelter on the day of a disaster or for possible rehousing of parts of the population in areas surrounding large military objectives. The plans for emergency shelter will be covered in another bulletin.

The joint committee on evacuation comprises the director of the Office of Civilian Defense as chairman, a representative of the Office of Defense Health and Welfare Services as secretary, and representatives not only of these offices but also of the Children's Bureau, the Public Health Service, the Office of Education and the Social Security Board. The material developed by this committee is made available to appropriate state and local officials through the regional directors of the Office of Civilian Defense. A member of the staff of each regional director, recommended by the joint committee, will be appointed by the director of the Office of Civilian Defense to develop evacuation plans in cooperation with state and local officials and the military authorities.

THE U. S. CITIZENS DEFENSE CORPS

The Citizens Defense Corps consists of six services, each headed by a chief who is responsible directly to the commander of the corps. The six services are the wardens service, emergency police service, emergency fire service, emergency medical service, emergency utility service and emergency public health service, and now in Operations Letter No. 76 of the Office of Civilian Defense, Washington, D. C., dated September 21, it is recommended that an emergency welfare service also be created. The emergency welfare service will include those types of service and assistance provided to meet the social or economic needs of civilians which result from enemy action. These needs include emergency food and housing for those rendered homeless by attack and social services necessary to reestablish families and to get workers back to their jobs quickly. Provision should be made by the emergency welfare service for (1) registration centers to facilitate the reuniting of families, to extend advice and counsel and to answer inquiries; (2) temporary rest centers where food, shelter and other forms of emergency aid will be available immediately; (3) provision for rehousing families who have been rendered homeless; (4) cash assistance to those who have lost all immediate resources; (5) removal and storage of furniture and other effects from damaged buildings; (6) minor repairs to homes which can be rendered habitable, and (7) replacement of tools and working materials in order to return workers to a productive status. Government funds for assistance to civilians suffering from injury or loss will be made available to the appropriate state and local agencies, according to plans formulated by the Federal Security Agency in the Office of Civilian Defense and Welfare Services. The establishment of the emergency welfare service does not amend the agreement between the American Red Cross and the Office of Civilian Defense dated May 18, 1942.

The regulations (No. 3) of the Office of Civilian Defense relating to the U. S. Citizens Defense Corps have been revised by amendments which became effective September 1. The principal changes in the regulations are set forth in Operations Letter No. 34, Supplement No. 3, dated September 11. The Office of Civilian Defense on October 13 sent a memorandum to regional directors interpreting Supplement No. 3 with respect to responsibility for training. Basic training, it was said, is necessary prior to enrolment in the U. S. Citizens Defense Corps, and the standards for this training are established by the U. S. Office of Civilian Defense. The various states through their counsels of defense may adopt the training courses in conformity with those standards as a minimum and, where stated, to adopt such training plans; the completion of basic training under those plans will qualify registrants for acceptance in the Citizens Defense Corps. The commander of the U. S. Citizens Defense Corps is directly responsible for the training of persons after their enrolment in the corps. The commander is responsible for the details of training and is expected to appoint training authorities to carry out the details. Where states have not adopted such courses as are referred to, local defense councils should adopt similar courses in conformity with the standards of the U. S. Office of Civilian Defense as a minimum.

THE UNITED STATES CITIZENS SERVICE CORPS

The United States Citizens Service Corps of the Office of Civilian Defense is an army of unpaid civilian workers mobilized to do the many civilian war jobs necessary to keep the home front strong. The Citizens Service Corps is responsible for leading the fight against inefficiency, insecurity and poor health within the community. Any one willing to give his spare time to volunteer war work on the home front may join the corps. To join, persons 16 years of age or over may register with the Volunteer Office of the local defense council, which has the power to decide who should be admitted to the Service Corps in its community. The local Defense Council will require that candidates be qualified in one of three ways: (1) by completing a prescribed training course approved by the council, in preparation for a volunteer work assignment, (2) by completing a prescribed period of apprenticeship, mutually agreed on by the agency using the volunteer and by the local Civilian Defense Volunteer Office, (3) by completing fifty hours of work for which no specific training course is required, in a volunteer position approved by the local Defense Council through the Volunteer Office. Some persons will already have completed the required amount of work in an approved position and will thus immediately be eligible for membership in the Citizens Service Corps. The corps encourages to the fullest extent the work of established agencies. The service opportunities for the Citizens Service Corps in general include whatever volunteer work—outside of civilian protection—the community needs to prepare itself for war. The members receive instruction from, and work under, the supervision of the community agency or committee of the Defense Council to which they are assigned. Clerical workers are needed in practically all divisions of the corps. They may take the training course for the unit in which they are serving but are not required to do so. It is assumed that the volunteer work in the corps which professional people will perform are parallel with professional service in that field and their training, therefore, if any, will be of a refresher nature. A person who enters the corps by completing an approved training course and who fails to give community war service will not be allowed to continue in membership. The insignia of the corps consist of a red block V placed in the center of a white triangle, a red C and a red D placed respectively to the left and the right of the V and half its size, and the white triangle embossed on a circular field of blue. Each appointee shall take an oath to defend and uphold the Constitution of the United States and to perform properly all duties of a member of the Service Corps. He shall then be entitled to wear the insignia of the corps until his membership is terminated. The Office of Civilian Defense, Washington, D. C., has published a handbook for the use of persons desiring to volunteer in the community war services, defense councils and the volunteer offices, and agencies using the services of volunteers.

CIVILIAN DEFENSE APPOINTMENTS

Dr. Felix J. Underwood, state health officer of Mississippi, has been appointed state chief of Emergency Medical Services, according to the Jackson *Clarion-Ledger*.

SUPPLIES FOR EMERGENCY MEDICAL UNITS

Medical and surgical supplies and equipment for emergency medical field units and casualty stations are to be shipped from the Office of Civilian Defense depots by direction of the Procurement Section of the U. S. Office of Civilian Defense. Because of their perishable nature, drugs, medical supplies and equipment will be shipped to hospitals for storage and subsequent disbursement to medical field units and casualty stations of the Emergency Medical Service. On arrival of the shipment at a hospital, the local property officer will check the shipment and see that it is properly stored by the hospital. He is then authorized to transfer the property custodianship to the chief of Emergency Medical Service on certification that the property will be issued only to the emergency medical units of the U. S. Civilian Defense Corps. All property, whether stored at the hospitals or distributed to casualty stations or medical field units, remains the property of the government of the United States, and due care is to be taken by all members of the Emergency Medical Service to safeguard it against loss or destruction. Additional information concerning the disposition of medical and surgical supplies by local property officers appears in instructional Letter No. 29 revised, dated September 18, and in a memorandum from the Office of Civilian Defense, Washington, D. C., dated September 11.

MISCELLANEOUS

THE STUDENT LOAN FUND APPOINTMENTS

Paul V. McNutt, Federal Security Administrator, announced on October 10 the appointment of Kendric N. Marshall, former president of Chevy Chase Junior College of Washington, D. C., to direct the new student loan fund program. Mr. Marshall will administer the $5,000,000 loan fund provided by Congress to enable students to complete their technical or professional education in fields essential to the war effort. He will be assisted by Ralph C. Flynt, formerly of the Education Division of the Civilian Conservation Corps, who will act as one of four liaison agents between the participating colleges and universities and the Office of Education. Rosa Lee Walston, formerly dean of women at Alabama Polytechnic Institute, will have charge of aid for women students. Ruth Grout, a graduate of the School of Public Health at Yale University and formerly supervisor of health education at the Tennessee Valley Authority at Knoxville, Tenn., has been appointed consultant in health education.

ELIGIBILITY FOR C RATIONING OF GASOLINE

The Office of Price Administration, in announcing on October 26 that the eligibility for C rations of gasoline will be generally tightened under nationwide mileage rationing, made public a list of twenty preferred mileage uses. Among the twenty preferred mileage users listed are physicians, surgeons, dentists and midwives for making necessary professional calls outside their offices if they regularly make such calls or for transfer between offices maintained by them, but only if the applicants are licensed as such by the appropriate governmental authority; farm veterinarians for rendering professional services at agricultural establishments if the applicants are licensed by governmental authority and regularly render such professional services; medical interns, students of accredited medical schools or public health nurses (but not including private nurses) employed by or serving under the direction of a clinic or hospital, governmental agency, industrial concern or similar organization for rendering necessary medical, nursing or inspection calls; duly authorized religious practitioners, other than ministers, serving members of an organized religious faith in the locality which they regularly serve, but this does not include travel from home to place of worship; workers, including executives, technicians and office workers, for necessary travel to, from, within or between military and hospital establishments, public utilities and industrial, extractive or agricultural establishments essential to the war effort for purposes necessary to their function or operation (this does not include travel for sales, promotional or certain other purposes) and members of the armed forces of the United States or state military forces on official business, where no military vehicle is available, or for necessary transportation between home and post of duty (but not for transfer from post to post).

While the present Eastern gasoline rationing plans list only fourteen groups of preferred users, the eligibility field actually has been narrowed in several instances and broadened in only a few minor categories. The Office of Price Administration explains that the increase in the number of eligible groups results mostly from splitting up present groups for purposes of clarification.

PLAN TO INCREASE RECRUITMENT OF STUDENT NURSES

The urgency of the need for nurses was brought to the attention of the board of directors of the General Federation of Women's Clubs at a meeting in Chicago, October 17, by Miss Katharine Faville, chairman, national committee on recruitment of student nurses of the National Nursing Council for War Service. Miss Faville is reported to have said that fifty-five thousand nurses will be needed by next year; she appealed for the doubling of last year's "bumper crop" of student nurses enrolled in nursing schools. A plan whereby the General Federation of Women's Clubs would assist in the recruitment of nurses was presented at the meeting by Mrs. John L. Whitehurst. The women's clubs would contribute scholarships to nursing schools, poll their membership of two million for graduate nurses whom they would endeavor to have resume their profession, set up student recruiting committees to cooperate with local nursing groups or state nursing councils, cooperate in the community plan for satisfactory distribution of available nursing service and organize Red Cross nurses aid programs and home nursing classes in every women's club.

GOOD WILL NURSING TOUR

The Pan American Sanitary Bureau, with headquarters in Washington, D. C., has sponsored a good will nursing mission to South American republics. The members of the mission, Miss Amelia Urquiola, Miss Hercilia Rodriguez-Brizuela and Miss Kathleen M. Logan, were scheduled to visit Mexico City, Guatemala, San Salvador, Tegucigalpa, Managua, San Jose and Panama City, spending about a week in each place to familiarize nursing professions with the role of nursing in national defense, to explain first aid methods of the American Red Cross and to stimulate interest in nursing in women's organizations. Miss Logan was expected to remain in Central America as a public health nurse consultant of the Pan American Sanitary Bureau, while the other two members of the mission will return to Argentina, their home country.

VINYL ACETATE TO BE UNDER ALLOCATION CONTROL

The Office of War Information has announced that vinyl acetate, used in the manufacture of rubber substitutes and in the synthesis of sulfonamide derivatives, was placed under complete allocation control, October 8, by the Director General for Operations. Allocation will take effect on November 1, according to the terms of order M-240, although the director may issue specific directions on use or deliveries after October 8. Deliveries of 25 pounds or less in any one month may be made without regard to allocation. Form PD-600 is to be used for requests for deliveries and Form PD-601 for reports from distributors.

ORGANIZATION SECTION

OFFICIAL NOTES

CHANGES IN RULES OF COMMITTEE ON AMERICAN HEALTH RESORTS

The Committee on American Health Resorts has made the following changes in its rules, which are herewith published by authority of the committee.

W. W. BAUER, M.D.

CHANGES IN THE RULES

Former rule 6 was renumbered to become new rule 9.

The following paragraph appearing in the introduction to the first edition of the rules was transposed to become:

RULE 6.—*Modifications of the Rules.*—When any modifications of the rules are deemed necessary, those resorts already listed under rules as previously adopted will be notified promptly and will be given reasonable opportunity to comply with the modified ruling or voluntarily to withdraw from the listing.

The following new rules were adopted:

RULE 7.—*Advertising of Health Resorts.*—A health resort when listed will be permitted to make use in its advertising and descriptive literature of the phrase "listed by Committee on American Health Resorts of the American Medical Association." No other phraseology shall be used, nor shall the name of the American Medical Association appear in any advertising or publicity matter except as included in this phrase. The fact that a resort is listed shall not constitute the principal feature of publicity, nor shall the fact of such listing be exploited.

RULE 8.—*Duration of Listing.*—Listing of an institution shall on its first application be for a preliminary period of one year; subsequent listings shall be for a period of three years; all listings shall be subject to prior review in the event of violations of these rules.

MEDICAL ECONOMIC ABSTRACTS

SICKNESS INSURANCE IN CANADA

According to a report of the executive committee of the Manitoba Medical Association, the movement for sickness insurance has advanced to the stage where discussions are going on between the Canadian Medical Association and the government. The Manitoba Medical Association adopted the following motion:

> That we instruct our representative on the executive committee of the Canadian Medical Association we are in favor of the medical profession in Canada cooperating with the government in devising a scheme to provide the benefits of modern medicine for all citizens of Canada whose income is not sufficient to provide it for themselves, and the basis of the scheme should be medicine as at present practiced—patients to have free choice of a regularly qualified and registered medical practitioner.

Shortly after the adoption of this motion, the deputy minister of health requested that the medical association appoint a committee to participate in the discussion. In 1941 the Committee on Economics of the Manitoba Medical Association, after gathering evidence from many other health schemes in Canada and the United States, suggested the following two plans:[1]

Plan 1 provides for surgical services only in a hospital for those with an income level at $2,400 or less.

Plan 2 provides for a complete surgical and medical service for members with an income limit of $2,400 or less.

These plans were presented to the Manitoba medical executive in November last and recommendations made that these plans be presented to the medical practitioners of Greater Winnipeg for criticisms. The profession expressed approval of the principles of these two schemes. It was then referred back to the Manitoba Medical Association executive meeting in January 1942, when the chairman was authorized to name four or five to select a provisional board.

This provisional board, with Dr. M. R. McCharles as chairman, reported progress and stated that three principles will guide the provisional board in working out the details: 1. This plan will not interfere with the professional relations between patient and doctor. It will take over the financial relations. 2. The provisional board will not countenance any procedure that will constitute a retrograde step in medicine. 3. That none of the fees on the schedules which are going to be drawn up will be below the present workmen's compensation board rates. He finally stated that there is much to do and that progress will be slow.

1. Annual Reports of Committees, September 1942: Manitoba M. Rev. **22**: 201 (Oct.) 1942.

THE HEALTH OF YOUNG PERSONS

Nearly 90 per cent of the 150,000 National Youth Administration youths examined by private physicians and dentists between January and October 1941 needed medical, surgical, nutritional or other care to improve their health or correct defects. This is the conclusion of "Health Status of N. Y. A. Youth on Out of School Work Programs," which is the third and last in a series of studies based on N. Y. A. examinations.[1] This document has been prepared and published by the National Youth Administration and the United States Public Health Service.[2]

The boys and girls examined were between the ages of 16 and 24, not attending school, from low income families and employed or seeking employment under the work program of the National Youth Administration. It is believed that they constitute a fair sample of American youths at low income levels and in search of work. A tabulation of the results of the physical examination placed 67 per cent in class A, fit for any work or athletic activity. "Thirty per cent had health defects which limited their employability to some degree and put them in class B.

"Three per cent were found to be temporarily or permanently unfit for N. Y. A. employment and were placed in class C."

The proportions were much the same for male and female and for white and Negro youths. The greater prevalence of venereal diseases and tuberculosis ran up the proportions of Negro youths placed in class C. Hookworm was responsible for an increase in the number in this class in the East South Central and West South Central census regions.

Health status appears to decline with age even among these young people. While 69 per cent of the group from 16 to 20 years of age were classified as fit for work, only 59 per cent of those from 21 to 24 could be included in this group. More city than country and small town youths had health defects which limited the kind of work they could do. There is a close resemblance between these results and those of the first million examined for selective service. In both groups dental and eye defects led the list of defects. Nose and sinus defects and tonsillectomies were next in importance. Roentgen examination was given wherever possible to positive reactors to tuberculin tests. Of 13,224 so examined, 1.6 per cent showed evidence of some stage of active tuberculosis.

1. The National Youth Administration Contributes to the National Health, J. A. M. A. **115**: 2185 (Dec. 21) 1940. The National Youth Administration Health Program, ibid. **116**: 2511 (May 31) 1941.

2. Copies may be secured from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education and public health.)

ARIZONA

Dr. Milloy Appointed Secretary of State Association.—Dr. Frank J. Milloy, Phoenix, has been appointed secretary of the Arizona State Medical Association, succeeding Dr. W. Warner Watkins, Phoenix, who resigned. Dr. Milloy graduated at Northwestern University Medical School, Chicago, in 1920.

Health and Welfare Center Opened.—The Pima County Health and Welfare Center, erected at a cost of $45,000, has been opened in Tucson. The clinic space is divided into two large complete clinics with a waiting room between. Each has an examining room, two treatment rooms and a utility room. Facilities are now available for the staff, laboratory, storage room, x-ray department, dentist's office and a record room. Local and federal funds were used to defray the expense of the building.

CALIFORNIA

Changes in Health Officers.—Dr. Charles Benninger Jr., city health officer of Oroville, has been appointed county health officer of Butte County to succeed Dr. Louis C. Olker, Chico, who resigned.——Dr. William P. Frank, Alhambra, has been appointed Alhambra District health officer. The Alhambra District includes El Monte, Monterey Park, San Gabriel, San Marino and South Pasadena.

New Professor of Hygiene at California.—Dr. Walter H. Brown, Stanford University, who this year becomes emeritus professor of hygiene and physical education at Stanford University School of Medicine, is to become professor and chairman of the department of hygiene at the University of California at Berkeley. He succeeds Dr. Robert T. Legge, who recently retired. Dr. Brown graduated at Jefferson Medical College in 1906. He has been president of the American Public Health Association, health officer of Marion County, Oregon, and of Mansfield, Ohio, where he conducted demonstrations for the Commonwealth Fund. He was also the first full time health officer of Bridgeport, Conn.

Mental Hygiene for Adults.—The University of California Extension Division is sponsoring a course in mental hygiene for adults in war and peace. The course opened on October 24 and will continue each Saturday morning until December 12. The speakers are Drs. Jacob S. Kasanin, San Francisco, and Herbert E. Chamberlain, Sacramento. The schedule is as follows:

Introductory Lecture on Mental Hygiene, October 24.
Mental Hygiene, October 31.
Psychological States and Their Emotional Components, November 7.
The Criteria of a Normal Personality, November 14.
Social Welfare and Security, November 21.
The Concept of the Neurotic Individual, November 28.
Treatment of Personality Difficulties and Maladjustments, December 5.
Joint Lecture—Special Problems of Civilian Morale and Personality Adjustment During War Period, December 12.

Prophylactic Stations.—Three prophylactic stations have been opened in San Francisco under the auspices of the city and county departments of public health of San Francisco. They are at the Central Emergency Hospital, the Harbor Emergency Hospital and the Army Medical Station. The personnel for the station at the Harbor Hospital is furnished by the Twelfth Naval District and for the other two through the cooperation of the Fourth Army Headquarters. All supplies and equipment are furnished through the department of venereal disease of the San Francisco Health Department. The service at the stations is available to civilians as well as to members of the armed forces. During the first month of the operation of these stations 23 per cent of prophylaxis was administered to civilians. Arrangements have been made to distribute 500,000 leaflets advertising the location of these prophylactic stations to members of the armed forces. The Central and Harbor emergency hospitals are regular units of the San Francisco Emergency Hospital Service.

FLORIDA

New Children's Hospital.—The new two story South Florida Children's Hospital, Miami, is rapidly nearing completion. The center part of the building is three stories in height. Ramps have been provided in the building to take the place of stairways. The hospital will contain two operating rooms and a plaster cast room. The hospital fills the need in this area for crippled children.

Personal.—Dr. Howard G. Holland, Leesburg, has been appointed medical consultant for the Florida Industrial Commission.——A dinner was held, October 12, to celebrate the completion of fifty years in the practice of medicine by Dr. Henry E. Palmer, Tallahassee.——Dr. Raymond D. Tompkins, Mountain Home, Tenn., has been appointed chief medical officer at the U. S. Veterans Administration Facility, Bay Pines.

ILLINOIS

Dr. Pettitt Returns to Private Practice.—Dr. Herbert L. Pettitt, Morrison, resigned on October 26 as assistant director of the state department of public health to return to private practice. According to the Chicago *Tribune*, Dr. Pettitt explained that the shortage of physicians in his home city was the reason for his retirement from the department.

Chicago

Professor Shryock to Address Institute of Medicine.—A joint meeting of the Institute of Medicine of Chicago and the Society of Medical History of Chicago will be addressed at the Palmer House, November 27, by Richard H. Shryock, Ph.D., professor of American history, University of Pennsylvania, and lecturer on history of medicine, University of Pennsylvania School of Medicine, Philadelphia, on "Factors Affecting Medical Research in the United States, 1800-1900."

Society News.—The Chicago Society of Internal Medicine will be addressed on November 23 by Drs. Italo F. Volini, Robert O. Levitt and Richard Martin, Peoria, on "Studies on Mercurial Diuresis: Sudden Death Following Intravenous Injection; Report of Three Cases with Electrocardiographic Studies"; Heinrich Necheles, "Depression of the Stomach by Nonspecific Substances," and William F. Petersen, "Medical Implications of Organic Rhythm Observed in Adult Triplets."

New Foundation for Research in Hearing.—The Parmly Foundation has been established at the Illinois Institute of Technology to carry on research in hearing. The foundation, which was created through a trust fund of $300,000 set aside by the late Samuel P. Parmly Jr., a Chicago business man, will concentrate its work on the physics of hearing and plans to cooperate with the medical profession on other aspects of the problem. This is in accordance with the plan of Mr. Parmly, who also stipulated that the research must be done at an institution of learning. The offices and laboratories of the new foundation, which will begin its work at once, will be located in the physics building on the south side campus of the Illinois Institute of Technology.

Professor Bensley Observes Seventy-Fifth Birthday.—A symposium on "The Physical and Chemical Organization of the Cytoplasm" will be held at the University of Chicago, November 13, in honor of Robert R. Bensley, D.Sc., professor of anatomy at the university since 1907, in celebration of his seventy-fifth birthday. Participating in the symposium will be:

Dr. Eleazar S. G. Barron.
Harold W. Beams, Ph.D., Iowa City.
Robert Chambers, Ph.D., New York.
Dr. Albert Claude, New York.
Edmund V. Cowdry, Ph.D., St. Louis.
Isidore Gersh, Ph.D., Baltimore, and David Bodian, Ph.D.
Dr. Normand L. Hoerr, Cleveland.
Dr. Arnold Lazarow.
Dr. Oliver H. Lowry, Boston.
Alfred E. Mirsky, Ph.D., and Arthur W. Pollister, Ph.D., New York.
Gordon H. Scott, Ph.D., St. Louis.
Francis O. Schmitt, Ph.D., Cambridge.
Dr. Kurt Stern, New York.

Dr. Bensley was born in Hamilton, Canada, Nov. 13, 1867. He graduated at the University of Toronto in 1899, serving there until 1901, when he joined the University of Chicago as assistant professor of anatomy. The University of Toronto awarded him the degree of doctor of science in 1919. Professor Bensley, during the past ten years, has done pioneer work in separating a number of constituents from cytoplasm and has subjected them to chemical analysis. For more than thirty years he was director of the Hull Laboratory of Anatomy at the University of Chicago.

INDIANA

Medical Aspects of Chemical Warfare.—The Indiana University School of Medicine, Indianapolis, in cooperation with the Indiana State Defense Council, held a symposium, October 23-24, on the medical aspects of chemical warfare. Real gases were used in the course. The use of gas masks was shown and their protection against tear gas was demonstrated by personal experiences. Animal tests illustrated the pathologic conditions caused by certain gases. The chemical warfare unit from Purdue University, Lafayette, staged field demonstrations of the dispersal of gases by means of explosives and the decontamination of gassed areas. The program included the following:

Rolla N. Harger, Ph.D., Indianapolis, Physical and Chemical Properties of Chemical Warfare Agents.
Dr. Louis W. Spolyar, Indianapolis, Detection and Preventive Measures.
Dr. Frank Forry, Indianapolis, Pathologic Changes Caused by War Poisons.
Dr. Khalil G. Wakim, Indianapolis, Physiologic Apsects of Chemical Warfare Casualties: Respiration Following Gas Lung Injuries; Impairment of Body Efficiency While Using Gas Masks and Protective Clothing.
Dr. Harold M. Trusler, Indianapolis, Treatment of Injuries from Poison Gas.
Lieut. Col. William S. Keller, M. C., U. S. Public Health Reserve, Columbus, Ohio, Why We Might Be Gassed and What Has Been Done About It.
Col. Willard A. Johnston, Lafayette, Demonstration of Gas Masks and Dispersion of Warfare Gases.

KANSAS

Society News.—Dr. Louis B. Gloyne, Kansas City, discussed "Some Technics in Military Hygiene Which Can Be Used in Civilian Life" before the Wyandotte County Medical Society, September 1. Dr. Eldon S. Miller, Kansas City, addressed the society, September 15, on "The Aged Diabetic."

New Executive Secretary.—Mr. Ralph Brooks, secretary of the chamber of commerce at Winfield, has been appointed executive secretary of the Kansas Medical Society, effective October 1. Mr. Brooks succeeds Mr. Clarence G. Munns, who has been commissioned a first lieutenant in the army air force. Mr. Brooks formerly was assistant secretary of the chamber of commerce at Wichita.

Examine Employees for Tuberculosis.—The Sedgwick County Medical Society has approved a proposal of the state board of health to examine industrial employees in Wichita in an effort to detect the presence of tuberculosis. The state board is using a 35 mm. photo x-ray unit. The pictures are projected on a screen and all doubtful cases are reexamined on a standard 14 by 17 plate. When tuberculosis is suggested, the patient is sent to his family physician for diagnosis and treatment. Examinations are voluntary and will be given at the various plants on company time.

LOUISIANA

District Meeting.—Drs. Edgar Hull and Robert C. Lowe, New Orleans, addressed the Seventh District Medical Society at Opelousas, September 10, on "Medical Aspects of Chemical Warfare Agents" and "Little Recognized Points in the Diagnosis of Nutritional Deficiencies" respectively.

MICHIGAN

State Medical Election.—Dr. Claude R. Keyport, Grayling, was chosen president-elect of the Michigan State Medical Society at its annual meeting in Grand Rapids in September and Dr. Howard H. Cummings, Ann Arbor, was inducted into the presidency. Dr. L. Fernald Foster, Bay City, is the secretary and William J. Burns, Lansing, executive secretary. The seventy-eighth annual meeting of the state society will be held at the Statler Hotel, Detroit, September 22-24. The house of delegates will meet September 20-21. The session will be designated a postgraduate conference on war medicine.

Michigan Professors on Leave.—Malcolm H. Soule, Sc.D., professor and head of the department of bacteriology and director of the Hygienic Laboratory, University of Michigan, Ann Arbor, has been on leave of absence since September. He was consultant to the director of the division of health and sanitation, coordinator of Inter-American Affairs at the Pan American Sanitary Conference in Rio de Janeiro, September 7-17, and will remain in South America until the end of November investigating the activities of the division in that continent, according to *Science*. Dr. Udo J. Wile, professor of dermatology and syphilology and chairman of the department at the University of Michigan Medical School, Ann Arbor, has been given a year's leave of absence to enable him to accept a commission as colonel in the U. S. Army; *Science* reports that he will serve as medical director in charge of venereal disease control in the U. S. Public Health Service.

MINNESOTA

New Committee to Study Medical Care.—Three representatives each from the Minnesota State Medical Association, the state dental association, the state hospital association and the conference of social work compose a new committee to study medical care in Minnesota, fulfilling the object of a resolution passed in 1941 at the Minnesota State Conference of Social Work calling for an immediate study of the medical and public health situation in the state. Drs. George A. Earl, St. Paul, chairman of the committee on medical economics; Alfred W. Adson, Rochester, chairman of the committee on sickness insurance, and William A. Coventry, Duluth, chairman of the committee on low income and indigent problems, are the representatives for the state medical association.

Chiropractor Stolurow Sentenced—To Leave Minnesota.—On September 29 Peter J. Stolurow, St. Paul, pleaded guilty in the district court of Ramsey County to a charge of criminal abortion. Stolurow stated to the court that all the members of his family are residing in California and that he desired a chance to leave the state of Minnesota permanently. According to the state board of medical examiners he stated to the court that it was impossible for him to keep out of the "abortion racket" in St. Paul because of his reputation for doing criminal abortions. The defendant was sentenced to a term of not less than two and not more than ten years at hard labor in the state prison in Stillwater. The sentence was suspended on condition that Stolurow immediately depart from the state and not return for any purpose whatever. Stolurow pleaded guilty on April 11, 1928 in the district court of Ramsey to a charge of criminal abortion and was sentenced to the state prison at Stillwater, serving over two years of this sentence. On April 15, 1935 he pleaded guilty to practicing medicine without a license and received a suspended sentence of one year in the St. Paul Workhouse. In May 19, 1941 he pleaded guilty to a charge of practicing healing without a basic science certificate and paid a fine of $250. The same day he pleaded guilty to a charge of endangering the life of a minor and was sentenced to one year in the St. Paul Workhouse. Stolurow was formerly licensed to practice chiropractic and chiropody in Minnesota, but his basic science certificate and licenses were revoked in 1935.

MISSOURI

Dinner to Mr. Lewis Carris.—Lewis H. Carris, LL.D., New York, director emeritus of the National Society for the Prevention of Blindness, was guest of honor at a dinner given in St. Louis October 10 by the St. Louis Society for the Blind in cooperation with the National Society for the Prevention of Blindness and the Association for Research in Ophthalmology. The Leslie Dana Gold Medal, awarded annually for achievements in the sight conservation movement, was presented to Mr. Carris at the dinner (THE JOURNAL, July 4, p. 821).

Changes in State Medical Association.—At a recent meeting of the Missouri State Medical Association, Mr. Elmer H. Bartelsmeyer, St. Louis, executive secretary, was placed on a consultant basis subject to call and Mr. Raymond R. McIntyre, A.M., formerly of Fayette, was named acting secretary. Dr. Ralph L. Thompson, St. Louis, was made secretary-editor and Dr. Charles C. Hyndman, St. Louis, was made treasurer. Dr. William A. Bloom, Fayette, was elected chairman of the council to take the place of Dr. Curtis H. Lohr, St. Louis, who resigned because he was going into service.

NEW YORK

Teaching Day on Maternal Welfare.—The state medical society sponsored a regional maternal welfare teaching day at Ellis Hospital, Schenectady, November 5, in cooperation with local health agencies and the state department of health. Dr. Alexander H. Rosenthal, Brooklyn, discussed "Local Anesthesia in Obstetrics and Gynecology" and Dr. Robert Gordon Douglas, New York, "Toxemias of Pregnancy."

Use of Sulfadiazine Discontinued.—A news item in THE JOURNAL, October 17, page 546, announced the decision of the New York State Department of Health not to renew the supply of sulfadiazine to laboratory supply stations for the treatment of pneumococcic infections. A report has been received indicating that the news item should also have stated that "the vast superiority that was earlier claimed for sulfadiazine over sulfathiazole seems open to challenge, and the markedly greater financial expenditure that the distribution of it entails seems hardly justified."

Staff to Continue Intern Education.—The Samaritan Hospital, Troy, will continue its program of intern education with only two interns, despite the hardships and pressure brought about by the war emergency. The required number of interns in residence at the 200 bed hospital is eight. One intern has been assigned to the service cases in the medical department and one to service cases in the surgical department. The attending physicians of other departments have assumed full responsibility for the detailed care of their cases, including private patients. This means that even senior attending physicians are on call for intravenous treatments, catheterization, transfusions and the like. The hospital believes that in this manner the interns are assured of ample time for the study and care of the patients.

New York City

Dr. Emanuel Libman Honored on Seventieth Birthday.—A dinner in tribute to Dr. Emanuel Libman on the occasion of his seventieth birthday was held at the Waldorf-Astoria on October 31 under the sponsorship of the American Friends of the Hebrew University and the American Jewish Physicians Committee, organized for the purpose of building and maintaining the Medical Department of the Hebrew University in Palestine. Dr. Nathan Ratnoff was toastmaster and the speakers included Dr. Joseph H. Pratt, Boston; Col. Leonard G. Rowntree, Washington, D. C.; Dr. Morris Fishbein, Chicago; Dr. Malcolm Goodridge, President of the New York Academy of Medicine; Dr. Israel Strauss; Mr. Samuel B. Finkel; Dr. Siegfried J. Thannhauser, Boston, and Rabbi Stephen S. Wise. A bust of Dr. Libman was presented to the Hebrew University on this occasion. Statements in tribute were received also from Albert Einstein, Princeton, N. J., and Chaim Weizmann. The three Nobel Prize winners present were Drs. Karl Landsteiner and Otto Loewi and Otto Meyerhof, Philadelphia.

Blood and Plasma Exchange.—A nonprofit organization has been formed under the sponsorship of the Medical Society of the County of New York with the approval of the Greater New York Hospital Association. It will be known as the Blood and Plasma Exchange Bank and will be under the direction of Dr. Lester J. Unger. The organization will supply blood and plasma from hospitals with blood banks to hospitals requisitioning either one. The following seven hospitals with banks, which will be referred to as supplying hospitals, have joined the plan: Beth Israel, Lenox Hill, New York, New York Post-Graduate Medical School, St. Luke's and St. Vincent's hospitals and Hospital for Joint Diseases. Blood and plasma, when orders are telephoned to the supplying hospitals, will be given to the messenger of the requisitioning hospital, whose delivery charges are paid by the requisitioning hospital. The rates charged requisitioning hospitals by supplying hospitals are: For 500 cc. of blood or 250 cc. of plasma, $20. For one-half of these amounts or less, $10. A hospital requisitioning blood or plasma may send two acceptable donors to the supplying hospital and thus cancel the entire charge of $20, or may send one acceptable donor and cancel $10 of the charge.

Care of Rheumatic and Cardiac Children.—The cardiac classification service of the city department of health has undertaken the responsibility for the admission and discharge of children to special classes in the public schools. All children attending elementary public schools who are suspected of having heart trouble or recent rheumatic fever will be given a form to be filled out by their family physician or clinic physician. If the family has no physician or clinic affiliation, such a child will be referred directly to the cardiac classification service of the department of health. If, after examination, the cardiologist decides that the child has heart disease or has had rheumatic fever, he will discuss the condition with the parents and refer the child to some medical agency (private physician or clinic) for follow-up care and treatment. He will also assign the child to a school program. With few exceptions, it will be the policy of the cardiac classification service to recommend dismissal from school of all children with active rheumatic fever. In some cases home instruction will be recommended; to admit children to health improvement classes for a short period of time (minimum of one school term) who have recently recovered from active rheumatic fever; to admit children to health improvement classes who have advanced rheumatic heart disease or congenital cardiovascular defects of sufficient severity to produce symptoms of cardiac insufficiency. The mere fact that a child has heart disease is not sufficient cause for admission to a special class. It is anticipated that many children will be admitted who do not have organic heart diseases. Other children who have heart disease or who have had rheumatic fever in the past (not very recent) will be placed on a modified activity program in a regular class. Emphasis will not be placed on the limitation of physical activity in their daily school life, but rather on the avoidance of infection to prevent as far as possible recurrences of rheumatic fever. One rest period will be designed as one of relaxation in the school library or nature room, rather than one of repose on a cot or as is done in the health improvement classes. Another group of children will be permitted to attend regular classes, but will not be allowed to participate in a strenuous physical training.

OHIO

The Lower Lecture.—Dr. Alfred Blalock, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, will deliver the annual Lower Lecture before the Academy of Medicine of Cleveland on November 20. His subject will be "Surgical Shock." The lecture is made possible by a fund donated by Dr. William E. Lower, Cleveland, an honorary member of the academy and a former president.

Changes in Health Officers.—Dr. Norman S. Reed, Caldwell, has been appointed health commissioner of Noble County to succeed Dr. Edward G. Ditch, Caldwell, who entered military service.——Dr. Kurt Carl Becker, Troy, has resigned as health commissioner of Miami County to enter private practice in Troy. He will be succeeded by Dr. Harry Wain, Sidney, formerly health commissioner for Sidney and Shelby County.

State Medical Meeting Moved to Columbus.—The annual session of the Ohio State Medical Association will be held in Columbus in 1943 instead of Toledo. The session will be held in the spring, provided war conditions will permit. The program will consist of a late afternoon or evening session of the house of delegates to be followed by a one day program of general sessions. Medical and health problems arising from the war and subjects related to the practice of medicine under wartime conditions will be the theme of the program.

Rheumatic Fever Reportable in Cincinnati.—The Cincinnati Board of Health recently added acute rheumatic fever and rheumatic heart disease to the list of reportable diseases by physicians. The action was taken following a recommendation by the Heart Council of Greater Cincinnati to the Academy of Medicine of Cincinnati, which in turn referred it to the board of health. According to the *Bulletin of the American Heart Association*, the purpose is mainly a statistical one in order that the heart council, cardiologists and public health workers in the community may have more reliable information for study purposes.

PENNSYLVANIA

State Medical Election.—Dr. Augustus S. Kech, Altoona, was named president-elect of the Medical Society of the State of Pennsylvania at its recent annual session and Dr. Robert L. Anderson, Pittsburgh, was installed as president. Dr. Walter F. Donaldson, Pittsburgh, was reelected secretary. The next annual session will be in Philadelphia, October 4-7.

Memorial Services for Physician Killed in Action.—A special memorial service for Major James A. McCloskey, M. C., U. S. Army, who was killed in action in Bataan, P. I., was held at the chapel, Carlisle Barracks, Pa., October 14. Major McCloskey was graduated at the Medical Field Service School at Carlisle Barracks in 1937 and is believed to be the first graduate of the school killed in this war. He graduated at the St. Louis University School of Medicine and attended the Army Medical School, Washington, D. C. For a time he was a resident surgeon at the Nix Hospital, San Antonio, Texas.

Pittsburgh

University News.—Herbert E. Longennecker, Ph.D., has been appointed associate professor of biochemistry and associate director of the Buhl Foundation projects in the University of Pittsburgh during the absence of Charles Glen King, Ph.D., New York, who is on leave to serve as scientific director of the Nutrition Foundation, Inc.

Industrial Fellowships Established.—P. Duff & Sons, Inc., has founded in the Mellon Institute an industrial fellowship that will be concerned with the scientific investigation of problems concerning cane molasses. The first fellowship was assumed on October 22 by Arthur J. Nolte, a food specialist, who has been working with the U. S. Bureau of Agricultural Chemistry and Engineering at Winter Haven, Fla.

RHODE ISLAND

Society News.—A panel discussion of the clinical and sociologic aspects of rheumatic fever and its heart complications was presented before a joint meeting of the Providence Medical Association and the Children's Heart Association of Rhode Island, October 5. The speakers were Drs. Henry E. Utter, chairman, William P. Buffum, Harold G. Calder, Francis V. Corrigan, Banice Feinberg, Frank T. Fulton and John C. Ham. All are from Providence.

SOUTH CAROLINA

Society News.—Dr. Albert B. Sabin, Cincinnati, among others, addressed the Greenville County Medical Society recently in Greenville on "Recent Studies on the Natural History of Human Poliomyelitis."——Dr. Kenneth M. Lynch, Charleston, discussed "Abnormal Chorionic Growth" before the Columbia Medical Society, October 12.

Personal.—Dr. William Cyril O'Driscoll has been promoted to associate professor of anatomy at the Medical College of the State of South Carolina, Charleston.——Dr. William C. Whitesides, York, was recently chosen president of the York Chamber of Commerce.——Dr. Gordon R. Westrope, director of the Cherokee County Health Department, Gaffney, has been appointed director of District No. 2, including eleven upper state counties.

Refresher Course.—The Alumni Association of the Medical College of the State of South Carolina sponsored a refresher course in Charleston November 4-5. The program covered a wide range of subjects and speakers included Drs. John B. Youmans, Nashville, Tenn.; Udo J. Wile, Ann Arbor, Mich.; Austin V. Deibert, Hot Springs National Park, Ark.; Luther E. Holt Jr., Baltimore; Reginald Fitz, Boston, and Howard T. Karsner, Cleveland, who lectured at the Founders' Day banquet on "Aortic Stenosis."

TEXAS

Baylor Adopts Accelerated Program.—The faculty of Baylor University College of Medicine, Dallas, has voted to go on an accelerated program of instruction. The present session, 1942-1943, will close on May 31, 1943. The next session, 1943-1944, will begin June 21, 1943 and close March 13, 1944. Thereafter for the duration of the war a new class is to be admitted and a class graduated approximately every nine months.

New Health Center.—The government has allocated $140,000 to purchase and equip the eight story Alamo National Bank Building, San Antonio, to be used as a public health center. Of the $140,000, $80,000 will be used for outright purchase of the building and $60,000 for equipment. The building will be the property of the federal government, and city and county health departments may rent space for $1 a year. It is expected that all the facilities of the San Antonio health unit will be housed in the center, with the exception of the venereal disease clinic, newspapers reported.

VIRGINIA

Personal.—Dr. Garland M. Harwood, Richmond, has been appointed acting medical director of the Life Insurance Company of Virginia. Dr. Ennion S. Williams, Richmond, resigned as medical director to enter the navy medical corps.

State Medical Election.—Dr. Claude B. Bowyer, Stonega, was chosen president-elect of the Medical Society of Virginia at its recent annual meeting and Dr. John M. Emmett, Clifton Forge, was installed as president. Miss Agnes V. Edwards, Richmond, is the executive secretary-treasurer.

WASHINGTON

Health Districts Formed.—The health departments of Jefferson and Clallam counties have united to form a joint public health district unit, following a conference of the state department of health with officials of these counties and the cities of Port Angeles and Port Townsend. The central office will be located at the court house in Port Angeles, with a branch office at Jefferson County court house in Port Townsend. District offices will be located in other sections of the counties. ——Walla Walla, Franklin and Benton counties have combined into a tricounty health district with Dr. John A. Kahl, Walla Walla, in charge.

WISCONSIN

Personal.—Dr. Dorothy Z. E. McDonald, Madison, advisory physician in school health education of the bureau of maternal and child health of the state board of health, has resigned to become vice chairman of the department of public health of Loyola University Medical School, Chicago.

University News.—Sister Elizabeth Kenny lectured at the University of Wisconsin Medical School, Madison, October 15, on "Treatment of Acute Anterior Poliomyelitis." The lecture was under the auspices of the Alpha Epsilon Iota Fraternity. Joseph C. Hinsey, Ph.D., New York, discussed "Regeneration of the Visceral Nervous System" at the school, October 13, under the auspices of Phi Chi.

GENERAL

Examinations in Obstetrics and Gynecology.—The American Board of Obstetrics and Gynecology announces that the next written examination and review of case histories for all candidates will be held in the United States and Canada in November (THE JOURNAL, July 11, page 895). The part II examination will be held at Pittsburgh, beginning Wednesday, May 19, and closing, Tuesday, May 25.

Josiah Lilly Awarded Remington Medal.—Josiah K. Lilly, Ph.G., since 1898 chairman of Eli Lilly & Co., has been awarded the twenty-first Remington Medal of the New York branch of the American Pharmaceutical Association for his distinguished services to pharmacy. The committee of selection was composed of past presidents of the American Pharmaceutical Association. The presentation of the medal is expected to be made soon at a meeting of the New York branch.

Claim Adjuster Contracts Medical Service.—A report has been received that a "Mr. John A. Mendoza," representing himself as the claim adjuster for Aetna Casualty Company of Hartford, Conn., and the Equitable Life Company of New York, out of the San Francisco office, has contracted professional and personal bills and disappeared without payment. Letters from both companies deny that any such John A. Mendoza, by name, is or has been in their employ.

Army-Navy E Awards.—The Army-Navy E award was presented to representatives of E. R. Squibb & Sons at special ceremonies in the Waldorf-Astoria Hotel, New York, September 18, by Rear Admiral Harold W. Smith, chief of the Navy's research division of the bureau of medicine and surgery, Washington, D. C. Representative insignia pins were given to employees. Similar ceremonies were held at the Abbott Laboratories, North Chicago, Ill., on September 22. Principal speakers included Rear Admiral John Downes, commandant of the Ninth Naval District and Col. Fredrick C. Rogers, commanding officer at Fort Sheridan. Dr. Morris Fishbein, Editor of THE JOURNAL, was master of ceremonies and Governor Green was guest of honor.

Cancer Study at National Institute of Health.—Under the provisions of the National Cancer Institute Act of Aug. 5, 1937 the National Cancer Institute has offered, during the past five years, traineeships in the diagnosis and treatment of cancer to young physicians interested in clinical cancer work as a career. Fifteen men are now taking this course. Fifty have completed the course, which lasts from six months to not more than three years, depending on the needs of the individual trainee and on the facilities and type of training offered by the training institutions. The stipend is, as a rule, $6 per working day and may be slightly more under unusual circumstances. A few vacancies are still open to properly qualified young physicians, men or women, who are interested in cancer but for some reason or other are not available for military service. For further information write to the National Cancer Institute, Bethesda, Md.

Low Suicide Rate.—The *Statistical Bulletin* of the Metropolitan Life Insurance Company for September, in an article entitled "Suicide and War," indicates a record low suicide rate among its policyholders. This phenomenon of an exceptionally low suicide rate is attributed largely to the psychologic effect of the war, although increased incomes have contributed a share. According to the *Statistical Bulletin*, a similar low level of suicide mortality is observed in England, where the rate fell consecutively from 1939 to 1941 and where the 1941 suicide rate among males was about 15 per cent below that of 1939. Also there was a sharp fall in the number of suicides in the last three months of 1939, which in England marked the opening period of the war. The bulletin states that the decline in suicide has been observed in practically every country at war, and, in some instances, neutral nations neighboring on the belligerent countries shared in the same phenomenon. Our experience in the last war was, the bulletin states, not only a decline of 20 per cent between 1917 and 1918, but the downward trend began in 1916 and continued through 1920.

Centers for Teaching Kenny Method.—Training facilities have been established for teaching the Kenny method in the treatment of infantile paralysis at the following places:

School of Health (Women), Stanford University, Calif.
Childrens Hospital Society, University of Southern California, Los Angeles.
University of Minnesota, Minneapolis.
Northwestern University Medical School, Chicago.
D. T. Watson School of Physiotherapy, Lettsdale, Pa.
Physical Therapy Post-Graduate School, Warm Springs.

While Sister Kenny and her Australian assistants work only at the University of Minnesota, each of the other places has trained personnel in charge of the courses. The programs are conducted in cooperation with the National Foundation for Infantile Paralysis and information as to costs, dates of courses

and admission policies can be secured directly from the schools. The *National Foundation News* announces that plans are under way to add the seventh training center in New York, which, it is hoped, will have courses available on December 1. The New York center will be carried on with the cooperation of several hospitals and schools of physical therapy under the direction of the Greater New York chapter.

Educational Program on Rheumatic Fever.—A health education program on rheumatic fever and rheumatic heart disease will be initiated this fall by the Metropolitan Life Insurance Company. The crippled children's division of the U. S. Children's Bureau will cooperate through its contact with state rheumatic fever programs now being financed with social security funds. The project aims to acquaint the company's policyholders and the general public with what is definitely known about rheumatic fever and rheumatic heart disease and to acquaint the medical profession more fully with the modern concept of the disease, the methods most recently employed to insure proper diagnosis and treatment, and the efforts being made by public health authorities to control the disease. Specially prepared leaflets, speeches, radio broadcasts, news releases, cooperating programs before state and county medical societies and the publication of articles in certain periodicals will be among the means used to project the new campaign. The program is a continuation of the health education activities carried on since 1909 by the welfare division of the Metropolitan Life Insurance Company. Other recent campaigns have included those on pneumonia in 1937-1938, appendicitis in 1938-1939, whooping cough in 1940 and diabetes in 1941.

Industrial Hygiene Foundation.—The seventh annual meeting of the Industrial Hygiene Foundation will be held at the Mellon Institute, Pittsburgh, November 10-11. The tentative program includes the following list of speakers:

Hon. Paul V. McNutt, Washington, D. C., Manpower Conservation.
Dr. Leroy U. Gardner, Saranac Lake, N. Y., Inhalation of Magnesium Dust.
Dr. James L. Blaisdell, Timmins, Ont., Further Studies of Aluminum Powder in Combating Silicosis.
Dr. W. Irving Clark, Worcester, Mass., Data on the Use of Grinding Wheels.
Dr. Eugene P. Pendergrass, Philadelphia, Practical X-Ray Technics for Mass Physical Examinations.
Dr. Louis Schwartz, Bethesda, Md., How to Prevent Dermatitis in War Industries.
Francis R. Holden, Ph.D., New York, What the Foundation's Plant Surveys Are Showing.
Wartime Problems in Chemical Industries and Industrial Health Implications (speakers to be announced later).
Dr. Huntington Williams, Baltimore, Health Problems in Suddenly Expanded Industrial Communities.
Dr. Stanley J. Seeger, Texarkana, Texas, Industrial Health Program of the Organized Medical Profession.
William McK. Bafafer, Sc.D., Leonia, N. J., Findings from Foundation-Public Health Service Study.
Dr. John J. Wittmer, New York, Some Common Causes of Sick Absences and Their Prevention.
Dr. Simon S. Leopold, Philadelphia, The Cold as an Industrial Health Problem.
Lieut. Meyer Brown, Chicago, M. C., U. S. Navy, Role of Psychiatry in Absences.
Ned H. Dearborn, Ph.D., New York, The Accident Factor in Absenteeism.

There will be two panel discussions: Fatigue in Wartime Industry with Dr. Clarence D. Selby, Detroit; Dr. William A. Sawyer, Rochester, N. Y.; Nathaniel Kleitman, Ph.D., Chicago, and William C. Forbes, LL.D., Boston, as the speakers, and Putting Women, Older Men and Physically Handicapped to Work with Dr. T. Lyle Hazlett, Pittsburgh; E. P. Chester, B.S., Hartford, Conn., and Mary Anderson, Washington, D. C., as the speakers. There will also be talks on "A Practical Nutritional Program for Industry" and "Responsibilities of Management and Labor in Keeping Men at Work," speakers to be announced.

CANADA

Community Doctor Service.—The Canadian Red Cross Society, Ontario Division, in cooperation with the Ontario Medical Association and the department of health, has inaugurated a community doctor service, which, according to the *Canadian Public Health Journal*, is an emergency wartime measure to assist rural and isolated communities to obtain the service of general practitioners. More than 25 per cent of the doctors of Ontario have gone into the forces or volunteered for other war services. A minimum of $4,000 is guaranteed by the Ontario Division of the Red Cross. The basis of service is general practice. No extra fees can be charged for any "added" service to the subscriber. The doctor provides his own transportation to the hospital, which must be within 25 miles. Patients supply their own drugs and supplies except in emergency or office care. Provision is made for a locum tenens for a two week holiday at the expense of the administration and for leave of absence for postgraduate study at the expense of the community doctor. As far as possible, the usual patient-doctor relationship is maintained. Before the introduction of a new service and once each year thereafter a family to family canvass is made for subscribers by the local Red Cross. Although dues are paid on a per capita basis, families which choose to become subscribers must participate as a unit. However, reduced rates are offered to families with many dependent children, and no charge is made for the sixth and additional child. Families who do not subscribe in advance have to wait thirty days (maternity, nine months) for service. Nonsubscribers are related to the plan only with respect to the guaranteed income. Emphasis on prevention arises from the prepayment feature and the appointment of the community doctor as medical officer of health. The doctor's duties are understood to include antepartum and infant welfare care, immunization and school health as well as the usual attention to municipal sanitation.

LATIN AMERICA

Rockefeller Fund Aids Campaign Against Malaria.—The Colombian government has signed an agreement with the Rockefeller Institute for Medical Research, New York, for financing, up to 3,700,000 pesos, a campaign against malaria and other tropical diseases, newspapers reported October 25. This serves the double purpose of improving public health and providing employment for many workers with the ultimate result of better production of essential products.

New Officers of Medical Societies.—The new board of directors of the Sociedade de Oftalmologia de São Paulo, Brazil, for 1942-1943 was recently appointed with the following members: Dr. W. Belfort Mattos, president; Dr. Plinio Caiado de Castro, vice president; Dr. Silvio de Almeida Toledo, secretary-general; Dr. Renato de Toledo, secretary; Dr. Francisco Amendola, treasurer, and Dr. Jose Mendonca de Barros, general manager.——The new board of directors of the Associacão Medica do Instituto Penido Burnier of São Paulo, Brazil, was recently appointed with the following members: Dr. Gabriel Oliveira da Silva Pôrto, president; Dr. Penido Burnier Jr. and Dr. Cid Marques da Silva, secretaries, and Dr. Leôncio de Souza Queiroz, treasurer.——The heads of the editorial board of the *Arquivos do Instituto Penido Burnier* are Drs. Penido Burnier, Guedes de Melo Jr. and Monteiro Sales.

Resolutions on Vital Statistics.—The Eleventh Pan American Sanitary Conference, in session in Rio de Janeiro, Brazil, September 7-18, adopted two resolutions concerning vital statistics and which, if carried out, would make for a uniform recording by statisticians of various countries. One resolution urged the creation and maintenance in each of the American Republics, as part of their health services, of a technically adequate organization for the collection, compilation and analysis of biodemographic data and other data related to public health. The resolution also covered the cooperation by the Pan American Sanitary Bureau with the Inter-American Statistical Institute and the statisticians of the various countries in establishing uniform methods and procedures. Another resolution urged the collection of statistical data relating to the incidence of cancer and cardiovascular diseases. It also recommended that the systematic practices of autopsies, in case of death without medical assistance, be intensified; that, in the schools of medicine, exercises in the proper certification of death be made obligatory in the course of hygiene and of legal medicine; that a committee be established in the office of the Pan American Sanitary Bureau for the purpose of making uniform the standards of biostatistics and the coordinating of the efforts in the solution of biostatistics problems of common interest to the countries of America.

FOREIGN

Epidemic in India.—The New York *Times*, October 17, reports that one of the worst epidemics of malaria in history is present in New Delhi, India, following the heaviest rains in many years. The *Times*, in quoting the Delhi *Dawn*, states that whereas 1,500,000 pounds of quinine is needed to treat present cases, Indian stocks amount to only 200,000 pounds.

CORRECTION

A Well Balanced Diet in Pregnancy.—In the item in the London Letter of August 21 entitled "A Well Balanced Diet in Pregnancy" (The Journal, October 3, p. 385) the second paragraph should have concluded "In 1,530 primigravidas who received the supplementary diet the toxemia percentage was 5.4; in those who did not it was 7.4. The result was striking and indicated a protection by the supplementary diet of almost 30 per cent." The incorrect percentages used in The Journal article appeared in the original abstract received from the London correspondent.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 3, 1942.

Pregnancy and Women's War Work

In the war effort women are conscripted for the auxiliary services. Those doing essential work are not called up, and this includes woman's most important work, the production and care of children. An enormous number of women have taken the place in industry which used to be filled by young men who have joined the fighting forces. Hence arises the obstacle of motherhood. Some firms send expectant mothers off duty for some weeks before and after labor and others do not. The law forbids factory work for four weeks after confinement, but not other work. The financial alternatives to ordinary wages are not sufficient to make women willingly give up their work. Yet the health of the mother during the last weeks of pregnancy and during lactation is of profound importance for the future of the country, especially in this time of threatened decrease of population. The National Council of Women has made representations to the minister of health on financial allowances for women during pregnancy and lactation. The council holds that a woman should be debarred from working in any paid employment during the last eight weeks of pregnancy and the first eight weeks of lactation. Under the National Insurance Act pregnancy is not recognized as incapacitating from work and therefore as qualifying for sickness benefit. But many of the societies allow payment of benefits during the last three or four weeks of pregnancy. The National Council of Women says that the war has aggravated a position which was previously unsatisfactory and suggests that the societies might interpret more widely their duties in paying insurance benefit to insured pregnant women. At the request of the minister of health the societies have agreed to relax their rules with regard to accepting women war workers as members. But the council asks them to go further by announcing that as a wartime measure they will recognize the last eight weeks of pregnancy as a period of incapacity within the meaning of the insurance act. But this would benefit only insured women, while others are equally in need of help.

Nursing to Be a Closed Profession

A nursing reconstruction committee set up by the Royal College of Nursing under the chairmanship of Lord Horder has submitted to the minister of health a report on the training, qualifications, employment and control of the assistant nurse —a problem which has given rise to more controversy than any since the passing of the Nurses Registration Act. The committee recommends that assistant nurses be enrolled under the General Nursing Council and that thereafter nursing become a closed profession, none but state registered, state enrolled assistant nurses and those training for such grades to be allowed to nurse for gain. The committee recommends that the two year training for assistant nurses (as compared with four year training for state registered nurses) should be taken chiefly in hospitals for the chronic sick, with some additional experience in fever, mental or tuberculosis hospitals. Candidates should not be expected to pass written examination but be given a simple practical and oral test at the end of their training, which must be essentially practical. They should not be instructed alongside nurses in training for the state registers, and, when qualified, their work must be supervised by a state registered nurse.

The committee recommends legislation making it an offense for nurses' agencies, which should in future be registered and inspected, to supply a nurse not on the state register. Inspection of nursing homes should be more vigorous. Private nurses should be obliged to notify their intention to practice and furnish the patient or his relatives with particulars of their qualifications.

Women Demand Equal Compensation for War Injuries

In support of the demand that women should receive compensation equal to that paid to men for war injuries, some eighty-four members of all parties propose to table in the House of Commons the following motion: "That this House is of the opinion that as women are now being conscripted for work in war factories and for fire watching they should be compensated at the same rate as men under the Personal Injuries (Civilians) scheme. The same argument will be advanced by a deputation, to be received by Mr. Atlee at the House of Commons, comprising many members of Parliament and representatives of a large number of women's organizations. Women members of the National Fire Service and the Civil Defense services, nurses and women war workers will be represented. The introduction of compulsory fire watching for women has led to increased insistence on the demand for equal compensation for war injuries.

A Hospital in Tobruk Under Siege

Mr. Forde, minister for the Australian army, has issued the story of the Australian general hospital during the siege of Tobruk. He described the work as one of the major achievements of the allied defense. When the fifty nurses were evacuated two days before the beginning of the siege they begged that at least twelve of them should be allowed to stay on to manage the wards and man the operating theaters, but the authorities refused, and inexperienced hospital orderlies took their places. These showed great aptitude and reached a satisfactory standard of efficiency in the operating theater in a week. Two of the best were an engine hand and a plumber. The operating theaters were huts and boiler rooms, and the surgeons discarded their sweat soaked gowns and worked in shorts, waterproof aprons and gloves.

At night the conditions were especially bad, the surgeons operating under a glaring electric light, with the windows blanketed for the blackout. The beach section of the hospital, dealing with casualties which did not require an operation, consisted of tents dug to a depth of 5 feet and protected with sandbags. The town section was situated in former Italian barracks, the thick walls of which provided protection from bombs. It was near many targets, such as antiaircraft posts, which were repeatedly attacked. Some patients were killed in the hospital. In an initial air attack two medical officers, two orderlies and nearly a hundred patients were killed and many others wounded. But no one lost heart. Without the assistance of the navy it would have been impossible to carry on. Destroyers maintained a regular ferry service.

A Mold with Remarkable Antibacterial Powers

Thirteen years ago, Mr. Alexander Fleming, now professor of bacteriology in the University of London and director of the department of systematic bacteriology, St. Mary's Hospital, discovered that the mold Penicillium notatum had remarkable antibacterial properties. Research was continued at the school of pathology of the University of Oxford by Prof. H. W. Florey, who separated the active principle, which is now known as "therapeutic penicillin." This has been found to inhibit the growth of staphylococci completely in a dilution of 1 in 25 million and partially in a dilution of 1 in 160 million. An additional advantage is the harmlessness of the drug. In experiments on mice no ill effects were observed though large doses were given, and the doses administered to human beings seemed to be innocuous. Thus the hope emerges that it may be possible to maintain in the blood a sufficient concentration to inhibit some of the organisms of disease. The prospect is all the more alluring, as penicillin has been found to be many hundred

times as active as the sulfonamides, which marked a great advance in therapeutics. Penicillin is beginning to attract much attention, but its therapeutic use remains to be worked out. Attempts are being made to obtain the drug in a purer and crystalline form.

Pharmacists Say That Physicians Should Not Dispense Medicines

In this country general practitioners supply the medicines for the patients under their care, but only consultants write prescriptions, which are dispensed by pharmacists or by the general practitioner with whom they see the case in consultation. When the National Health Insurance Act was passed, the government decided that prescriptions should be written in official books and dispensed by pharmacists. This removed much dispensing from the sphere of the general practitioner, but he still dispenses for his private patients. Pharmacists criticize this custom, which has existed for generations and is a relic of the days of the "apothecary," who combined some knowledge of medicine with pharmacy and was the progenitor of the general practitioner. The Pharmaceutical Society of Great Britain and the National Pharmaceutical Union have submitted a joint memorandum to the Committee on Social Insurance and Allied Services on the position of pharmacy in the future health services of the country. They urge that, as in the case of national health insurance, the supply of medicines for other domiciliary treatment should be in the hands of pharmacists. They give the following reasons: 1. The training of the physician in pharmacy becomes progressively smaller as the medical curriculum widens. 2. The physician supplying his own medicines is not likely to have available the wide range of medicaments which the pharmacists serving the patients of many physicians must stock. 3. The practitioner can supply his medicines only when he is at his surgery (unless he is able to employ a dispenser), which limits the opportunity of his patients to obtain them. 4. There is no inspection of physician's dispensaries, and tests of drugs or the accuracy of the dispensing are not applicable. Finally, the memorandum urges the importance of the pharmacist as an adviser, which modern conditions have increased. The physician frequently needs information about the properties of medicinal substances and guidance in their choice and the form in which they should be prescribed. It is suggested that without this information and guidance his prescribing tends to take on a stereotyped character or to be unduly influenced by propaganda to promote the use of proprietary products. One difficulty of the proposal is not mentioned. In rural districts it may be much easier for the patient to obtain his medicines from the physician than from the pharmacist in the nearest town, which may be many miles away.

No Heat Stroke Among Desert Tank Crews

A careful analysis of the casualties incurred by the British forces during the fighting in Libya and Egypt shows, somewhat to the surprise of the medical authorities, not a single case of heat stroke or heat exhaustion among tank crews as a result of the heating of the vehicles. The explanation appears to be that the movement of the tank provides sufficient aeration to prevent a dangerous rise of temperature.

Chinese Students for Britain

It is stated that examinations are now being held in four Chinese cities for students anxious to visit Britain to take advanced courses in engineering, shipbuilding, pharmacology and economics. In the House of Commons Mr. Eden, secretary for foreign affairs, said that arrangements are now under consideration whereby Chinese students will be brought to this country for postgraduate courses under the auspices of the British universities, the British Council and the Universities' China Committee.

Fatal Mistake from Similarity of Names: Procaine and Percaine

A woman dispenser in a hospital received a written slip from the theater sister asking for 1 Gm. of procaine. Thinking that procaine and percaine were identical, she dispensed the latter. She used crystals from a bottle of percaine and used them to make a solution, which she labeled procaine. For a skin grafting operation a surgeon decided to use a 5 per cent solution of procaine as a local anesthetic and asked the sister for this. When the operation was finished the patient had a convulsion. Six more followed in a quarter of an hour and death occurred within three quarters of an hour after the operation. An inquest followed, at which the medical evidence was that the necropsy showed that death was due to heart failure and shock. The solution used was found to be percaine. The normal maximum dose of procaine is 2 Gm., and the surgeon had injected 1.25 Gm., a perfectly safe dose. But percaine is a different matter. It is a more powerful anesthetic and is more toxic. The safe dose for an adult is 0.12 Gm. The patient had received ten times the maximum dose and this was the cause of death. It was unfortunate, said the medical witness, that names so similar as procaine and percaine should be used.

Shortage of Rubber Gloves

The loss of the Dutch East Indies as a source of rubber has produced an extreme shortage. In view of conserving supplies for essential war requirements the Ministry of Health has found it necessary to restrict the sale of household rubber gloves to persons who are certified by physicians to be suffering from long and intractable eczema, cheiropomphylyx or intractable dermatitis. Any one desiring to purchase rubber gloves for household duties can do so only if her physician certifies that she suffers from one of the three conditions mentioned and that the gloves are necessary for that purpose.

Marriages

ALBERT M. HARRIS, Little Rock, Ark., to Miss Margaret Eleanor Hofstad of Sioux Falls, S. D., August 5.

JOSEPH LAWSON PLATT, Charlottesville, Va., to Miss Louise Amonette Davis of Lynchburg, June 27.

LESLIE HOWELL HUBBARD, Montevallo, Ala., to Miss Gene Lewis of Montgomery, September 6.

CHARLES EDWARD MCKEOWN, Richmond, Va., to Miss Margaret Parker of Alexandria, July 3.

PHILLIP COCKE TROUT, Roanoke, Va., to Miss Bettie Ruth Reynolds of Shawsville, July 1.

THOMAS PAUL O'BRIEN, Benwood, W. Va., to Miss Jacqueline Weeks of Crewe, July 13.

JOSEPH H. RENO, Philadelphia, to Miss Maude O. Mutchler of Blackwood, N. J., June 27.

MOSES H. MCCLINTIC, Roanoke, Va., to Miss Kathryn Meador of Bedford, June 20.

GEORGE L. REGAN, Sellersburg, Ind., to Miss Betty Stephens of New Albany, June 18.

MARION R. SCHEETZ, Lewisville, Ind., to Miss Lorena Ryman of Knightstown, June 14.

COSMO JOSEPH TARDO to Miss Lena Anna Amato, both of New Orleans, August 6.

GEORGE W. JAMES, Humboldt, Tenn., to Miss Virginia Walke of Dublin, Ga., July 16.

HAROLD V. SMITH, Kearney, Neb., to Miss Florence Nellis of Hartington, July 29.

LOUIS FRIEDFELD, Brooklyn, to Miss Helen Levine of New York, August 23.

ROOSEVELT BROOKS to Miss Gwendolyn Redmon, both of Chicago, June 27.

CYNTHIA T. MORTON to Charles C. Ashley, both of Paris, Ill., July 1.

Deaths

Owing to the accumulation of material of military importance, the publication of obituaries has been somewhat delayed; hence the publication of four pages in this issue.

Edward Jackson ✠ Denver, professor emeritus of ophthalmology at the University of Colorado School of Medicine, died October 29, of heart block, aged 86.

Dr. Jackson was born in West Goshen, Pa., March 30, 1856. After graduation from the University of Pennsylvania Department of Medicine, Philadelphia, in 1878, he practiced in West Chester and in Philadelphia. In 1888 he became professor of diseases of the eye at the Philadelphia Polyclinic and served in that capacity until 1894 and again from 1896 to 1898. During this period he was surgeon to the Wills Eye Hospital. Following his moving to Denver, he was professor of ophthalmology at the University of Colorado School of Medicine, 1905-1921.

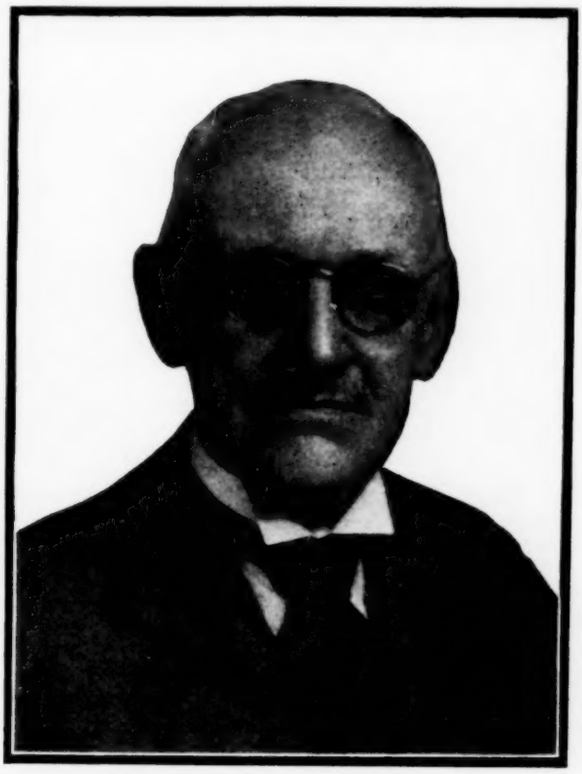
Dr. Jackson was especially noted for his leadership in the field of ophthalmology. He was chairman of the Section on Ophthalmology of the American Medical Association in 1887-1888 and again in 1894-1895. He was president of the Western Ophthalmological Society in 1934. He was a member of the American Ophthalmological Society, the Association for Research in Ophthalmology and the Pacific Coast Oto-Ophthalmological Society. In 1940 he was elected vice president of the Pan American Congress of Ophthalmology. From 1925 to 1935 he was president of the Colorado Commission for the Blind. He was also president of the American Board for Ophthalmic Examinations in 1916-1917.

In the American Medical Association Dr. Jackson was first vice president in 1904-1905 and a member of the House of Delegates from 1909 to 1912. At several sessions of the Association he was nominated to receive the distinguished service medal. He had served also as president of the Colorado State Medical Society in 1917.

Dr. Jackson was internationally famed for his contributions to the literature of ophthalmology. He was American editor of *Ophthalmic Review*, London, from 1890 to 1915 and editor of the *American Journal of Ophthalmology* from 1918 to 1928. He was author of "Essentials of Diseases of the Eye" in 1890, "Skiascopy" in 1895, "Manual of Diseases of the Eye" in 1900 and the "Ophthalmic Year Book" from 1904 to 1917.

The distinction of Dr. Jackson was recognized by the honorary degree of doctor of science granted to him by the University of Colorado in 1927. In 1931, as a tribute from his friends, his portrait was presented to the Medical Society of the City and County of Denver. On his eighty-third birthday, in 1939, another portrait was painted for the Wills Hospital, Philadelphia.

Among ophthalmologists who have aided greatly the extension of education regarding the eye to the public and nationwide movements for the prevention of blindness, Dr. Jackson's contribution is especially significant. He traveled widely in the promotion of such efforts. By his death this specialty of medicine loses one whose contribution in its advancement for more than half a century was tremendous.



EDWARD JACKSON, M.D., 1856-1942

Sigismund Schulz Goldwater ✠ New York, preeminent as a hospital administrator, as a consultant in hospital construction, recognized throughout the world as a leader in this field; aged 69; died, October 22, in the Mount Sinai Hospital, New York, of which he was for many years superintendent.

Dr. Goldwater graduated from the University and Bellevue Hospital Medical College in 1901. He entered promptly into the specialty which was to be his life work. He became superintendent of the Mount Sinai Hospital in New York City and occupied that position from 1903 to 1916 and was director of the hospital from 1917 to 1929. During this period he served also as municipal expert in hospital construction and administration. In 1908 he was elected president of the American Hospital Association. Almost from the first he assumed civic and public health duties of the greatest importance in advancing medicine throughout the nation. He was commissioner of health of New York City from 1914 to 1918, vice president of the New York Academy of Medicine in 1913 and vice president of the National Institution of Social Sciences from 1918 to 1921 and from 1924 to 1926. He had also been president of the American Conference on Hospital Service, medical counselor of the U. S. Veterans Bureau in 1924 and consulting expert to the U. S. Public Health Service.

Dr. Goldwater's eminence in his chosen field was recognized by election to honorary membership in the British Hospital Association. In 1925 he was awarded the honorary degree of doctor of science by Marquette University, Milwaukee, and in 1939 received the honorary degree of doctor of public health from New York University. In 1940 he was selected to receive the award of merit of the American Hospital Association. In 1933 Dr. Goldwater had been appointed consulting expert to collaborate with Russian architects, engineers and clinics in the planning of hospitals in Leningrad and elsewhere in the Soviet Union.

Following his retirement from active association with the Mount Sinai Hospital, Dr. Goldwater served in many public capacities. From 1934 to 1940 he was commissioner of the department of hospitals of New York City and since 1941 had been vice president of the research council of that department. Since 1940 he had also been president of the Associated Hospital Service of New York City and had been especially active in developing the extension of prepayment plans. He was a trustee of the United Hospital Fund of New York and also of the Huntington (N. Y.) Hospital. At the time of the National Health Conference, he had been most active in presenting the cause of the voluntary hospital. In his death medicine loses a wise counselor and a recognized leader in the advancement of medical and hospital services.

Herbert Anthony Potts ✠ Chicago; Northwestern University Dental School in 1895 and Northwestern University Medical School in 1901; in 1908 demonstrator of operative surgery, in 1917 professor of oral surgery and since 1938 professor emeritus at the Northwestern University Medical School; lecturer on anesthesia and assistant in oral surgery from 1908 to 1913, professor of pathology, lecturer on anesthesia and assistant in oral surgery from 1913 to 1920, professor of oral surgery from 1920 to 1939 and since Sept. 1, 1939 professor emeritus at the Northwestern University Dental School; chairman of the Section on Stomatology of the American Medical Association, 1921-1922, secretary of the section 1924-1925, and member of the House of Delegates in 1924; specialist certified by the American Board of Plastic Surgery; fellow of the American College of Surgeons; served as a major in the medical corps with the American Expeditionary Forces during World War I; senior oral surgeon at St. Luke's Hospital; formerly chief oral surgeon at the Evanston (Ill.) Hospital and the Cook County Hospital; aged 69; died, October 7, of cerebral arteriosclerosis at his home in Evanston.

Amand Nicholas Ravold ✠ St. Louis; St. Louis Medical College, 1881; at one time instructor of bacteriology at his alma mater, now known as the Washington University School of Medicine, where he had been professor of bacteriology and hygiene; an Affiliate Fellow of the American Medical Association and secretary of the Section on State Medicine, 1899-1900; president of the St. Louis Medical Society in 1926; bac-

teriologist for the city of St. Louis from 1894 to 1903; biologist in chief, in charge of the biologic survey of the Missouri, Mississippi and Illinois rivers and Lake Michigan from 1898 to 1903; served as a major in the medical corps of the U. S. Army during World War I; formerly associated with the U. S. Public Health Service; instructor of urology at St. Louis Policlinic School and Hospital from 1885 to 1887; instructor of bacteriology at the Shaw School of Botany, 1887-1888; physician at the St. Louis Infirmary, 1883-1884; in 1931, in recognition of his completion of fifty years in the practice of medicine, his friends presented a plaque of him to the St. Louis Medical Society; aged 83; died, October 26 in the Barnes Hospital.

Edward Robert Maloney ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1896; since 1940 professor emeritus of dermatology and syphilology at the New York University College of Medicine, professor from 1938 to 1940, associate professor from 1932 to 1938, assistant professor from 1932 to 1935, clinical professor from 1926 to 1932 and instructor in dermatology from 1923 to 1926; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; at one time joined the National Guard of New York as a captain in the medical corps; in 1915 served on the Mexican border and as a lieutenant colonel during World War I; in 1924 was made a colonel in the medical reserve corps; president of the medical board of St. Vincent's Hospital and since 1921 visiting dermatologist; consultant in dermatology at the Bellevue Hospital and the New York Foundling Hospital, New York, the Elizabeth A. Horton Hospital, Middletown, N. Y., and the Pilgrim State Hospital, Brentwood, N. Y.; aged 68; died, October 5, of coronary thrombosis.

William Barrett Brinsmade, Bedford Hills, N. Y.; College of Physicians and Surgeons, New York, 1892; emeritus professor of surgery and formerly instructor of practical obstetrics, assistant demonstrator and demonstrator of anatomy, instructor of operative surgery, chief of the surgical clinic and clinical professor of surgery at the Long Island College of Medicine, Brooklyn; surgical director of the U. S. Army Hospital number 202 and consulting surgeon of hospitals in Brest, France, during World War I; was cited by Gen. John J. Pershing "for exceptionally meritorious and conspicuous service," was decorated with the Order of the Purple Heart and was a Chevalier of the French Legion of Honor; commander in the U. S. Naval Reserve Corps; member of the American Surgical Association; fellow of the American College of Surgeons; aged 76; formerly consulting surgeon to the Long Island College Hospital, Brooklyn, St. John's Hospital, Brooklyn, and the Brooklyn Hospital, where he died, September 23, of cerebral embolism.

John Hyren Peck ✠ Oakdale, Iowa; State University of Iowa College of Medicine, 1909; specialist certified by the American Board of Internal Medicine; member of the House of Delegates of the American Medical Association in 1921; past president of the Iowa State Medical Society, Polk County Medical Society and the Mississippi Valley Conference on Tuberculosis; member and past president of the American College of Chest Physicians; past president and vice president of the National Tuberculosis Association; past president of the Iowa Tuberculosis Association; fellow of the American College of Physicians; served as a major in the U. S. Army and as chief of the tuberculosis service during World War I; lecturer on tuberculosis at his alma mater; superintendent of the State Sanatorium; aged 63; died, October 18, of coronary occlusion.

Walter Gresham Sexton ✠ Marshfield, Wis.; Johns Hopkins University School of Medicine, Baltimore, 1911; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association and formerly secretary, treasurer and president of the North Central Branch; fellow of the American College of Surgeons; at one time secretary of the Wood County Medical Society; formerly member and president of the board of education; member of the county draft board and served as a lieutenant in the medical corps of the U. S. Army during World War I; on the staffs of St. Joseph's Hospital and the Marshfield Clinic; aged 56; died, September 27, in the Worrell Hospital, Rochester, Minn., of arteriosclerosis and malignant hypertension.

Frank William Marlow, Syracuse, N. Y.; M.R.C.S., England and L.S.A., London, 1880; Syracuse University College of Medicine, 1885; member of the Medical Society of the State of New York, the American Ophthalmological Society and the Ophthalmological Society of the United Kingdom; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; professor emeritus of ophthalmology at his alma mater, where he was formerly instructor, lecturer and professor of ophthalmology and otology; for many years on the staffs of the Syracuse Memorial Hospital, St. Joseph's Hospital, Hospital of the Good Shepherd and the Syracuse Free Dispensary; aged 84; died, October 4.

Maxillian A. Bussewitz, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1907; member of the State Medical Society of Wisconsin; professor emeritus of physiology at the State Teachers College, Milwaukee; formerly professor of physiology at Marquette University; assistant state superintendent of public instruction, 1901-1902; secretary of the Wisconsin State Teachers' Association from 1910 to 1922; lieutenant colonel in the medical officers' reserve corps and served in the Wisconsin National Guard from 1892 to 1894; formerly teacher in physiology at the Trinity Hospital and St. Mary's Hospital, where he died, September 20, aged 75.

Albert Hurlbut Roler, Toppenish, Wash.; Northwestern University Medical School, Chicago, 1893; for many years head of the medical service for the Yakima reservation Indian agency; physician in charge of the Yakima Sanatorium; in 1916 was appointed assistant to the American embassy in Berlin to observe the conditions of British prisoners of war in Germany and of German prisoners of war in Russia; served overseas as a lieutenant colonel in the medical corps of the U. S. Army during World War I; at one time on the staff of the Children's Memorial Hospital, Chicago; aged 69; died, September 23.

Robert James Lawler ✠ Surgeon, Lieutenant Commander, U. S. Navy, retired, Elmira, N. Y.; University of Buffalo School of Medicine, 1904; entered the medical corps of the U. S. Navy in 1921 and retired in 1930 for incapacity resulting from an incident of service; served during World War I; for outstanding service received the Navy Cross, the Distinguished Service Cross, the Honorary Badge of Military Merit of the Purple Heart and the Croix de Guerre; senior medical officer of the Buffalo recruiting district of the U. S. Marine corps; aged 59; died, October 1, in St. Joseph's Hospital of myocarditis.

James Givens Carpenter, Lebanon, Ky.; University of the City of New York Medical Department, 1875; member and past president of the Kentucky State Medical Association; past president of the Central Kentucky Medical Society; formerly U. S. examining surgeon for pensions; at one time chairman of the board of health and health officer of Lincoln County; formerly physician in charge of the Joseph Price Infirmary, Stanford; at one time lecturer on gynecology at the Barnes Medical College, St. Louis; aged 88; died, October 7, in Louisville.

Gilbert Tyson Smith, McDaniel, Md.; University of Maryland School of Medicine, Baltimore, 1897; served as assistant physician at the Logansport (Ind.) State Hospital from July 5 to Sept. 5, 1942; formerly assistant superintendent of the Yankton (S. D.) State Hospital, the Mansfield State Training School and Hospital, Mansfield Depot, Conn., and the Huntington (W. Va.) State Hospital; at one time chief surgeon of several steamships of the United American Lines, Inc., of New York; aged 68; died, September 22, in Laurel.

Robert White Knox, Houston, Texas; University of Virginia Department of Medicine, Charlottesville, 1882; member and past president of the State Medical Association of Texas; member of the House of Delegates of the American Medical Association, 1904-1905, in 1908 and 1927-1928; fellow of the American College of Surgeons; for many years chief surgeon of the Southern Pacific Hospital; member of the board of the Hermann Hospital; aged 82; died, September 27, of coronary thrombosis.

Ned Overton Lewis ✠ Major, U. S. Army, retired, Rancho Santa Fe, Calif.; University Medical College of Kansas City, Mo., 1905; entered the medical corps of the U. S. Army as a major in 1920; retired Nov. 30, 1933 for disability in line of duty; served during World War I; at one time demonstrator of anatomy at his alma mater; formerly assistant police surgeon in Kansas City, Mo.; aged 60; died, August 31, of coronary thrombosis.

Charles Robert Sowder, New Castle, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1898; clinical professor of medicine at the Indiana University School of Medicine; member of the Indiana State Medical Association; served in the medical corps of the U. S. Army during World War I; formerly visiting physician to the Indianapolis City Hospital; aged 72; died, September 29, in Indianapolis.

Littleberry Steinback Foster, Williamsburg, Va.; University of the City of New York Medical Department, 1879; member of the Medical Society of Virginia; formerly super-

intendent of Mathews County schools, member of the state board of education and the state board of medical examiners; at one time director and superintendent of the Eastern State Hospital; aged 86; died, September 23.

Elmer Grant Weibel ✠ Erie, Pa.; University and Bellevue Hospital Medical College, New York, 1899; member of the Radiological Society of North America, Inc.; past president of the Erie County Medical Society; served for three years in the medical corps of the regular U. S. Army and during World War I; on the consultant staffs of the Hamot and St. Vincent's hospitals; aged 74; died, September 19.

David J. Levy ✠ Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; at one time health officer of Kalamazoo, Mich.; formerly on the staffs of the Herman Kiefer Hospital, the Woman's Hospital and the Harper Hospital; aged 61; died, October 14.

Frank James Hackett, Westmount, Que., Canada; University of Bishop College Faculty of Medicine, Montreal, 1892; a founder and for many years secretary of the medical board of the Western Hospital, Montreal; when it became the Western Division of the Montreal General Hospital he served on the consulting staff; on the staff of St. Mary's Hospital, Montreal; aged 79; died, September 7.

Robert S. Curry, Jackson, Miss.; Medical College of Alabama, Mobile, 1885; past president of the Mississippi State Medical Association; served as state factory inspector for the state board of health from 1924 to 1929; formerly a member of the House of Representatives from Hinds County; for eight years superintendent of the Mississippi School for the Blind; aged 80; died, August 20.

Joseph Arkell Campbell ✠ Marissa, Ill.; St. Louis University School of Medicine, 1906; formerly managing officer of the East Moline (Ill.) State Hospital and the Anna (Ill.) State Hospital; served as a major in the medical corps of the U. S. Army during World War I; aged 60; died, October 6, in the Barnes Hospital, St. Louis, following an operation for brain tumor.

Mary Louise Lines, Brooklyn; University of Michigan Homeopathic Medical School, Ann Arbor, 1884; member of the Medical Society of the State of New York; specialist certified by the American Board of Ophthalmology; consultant electrotherapist, Brooklyn Eye, Ear, Nose and Throat Hospital; aged 83; died, October 5, of coronary disease at Stoneybrook.

Sydney Algernon Dunham, Buffalo; Niagara University Medical Department, Buffalo, 1888; at one time lecturer of physiology at his alma mater; member of the Medical Society of the State of New York; formerly served as Erie County postmortem examiner; for many years owner of the Parkside Sanitarium and Hospital; aged 83; died, September 22.

Willard Phipard, New York; University of Vermont College of Medicine, Burlington, 1913; served as a lieutenant in the medical corps of the U. S. Army during World War I; a member of the medical board and an attending surgeon on the staff of the Lutheran Hospital; aged 55; died, October 6, of acute hemorrhagic pancreatitis and toxic hepatitis.

Harry Duffield Clough, Rochester, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1915; assistant medical director of the Rochester General Hospital; for many years secretary of the Rochester Academy of Medicine; formerly assistant professor of vital economics at the University of Rochester; aged 56; died, October 1.

Moses Scholtz, Arcadia, Calif.; University of Moscow Faculty of Medicine, Russia, 1900; specialist certified by the American Board of Dermatology and Syphilology; professor emeritus of clinical dermatology and syphilology at the College of Medical Evangelists, Los Angeles; aged 67; died, August 29, of coronary thrombosis.

Michael Charles Albi, Trinidad, Colo.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1921; member of the Colorado State Medical Society; served with the Italian Army during World War I; aged 45; died, September 29, in the Colorado General Hospital at Denver of cholemia and cirrhosis of the liver.

Francis Joseph Kelly ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1894; served as a major in the medical corps of the U. S. Army during World War I; on the consultant staff of St. Agnes, St. Vincent's and the Misericordia hospitals; formerly on the staff of St. Mary's Hospital; aged 70; died, September 3.

Franklin Lyman Lawton, Hartford, Conn.; Yale University School of Medicine, New Haven, 1893; member of the Connecticut State Medical Society; served as a captain in the medical corps of the U. S. Army during World War I; aged 72; died, September 30, in the New Haven (Conn.) Hospital, of coronary occlusion.

L. Gibbons Smart, Towson, Md.; College of Physicians and Surgeons, Baltimore, 1885; member of the Medical and Chirurgical Faculty of Maryland; at one time medical superintendent of the Creighton Sanitarium at Lutherville and the Rosewood State Training School at Owings Mills; aged 80; died, September 1.

Clyde Vernon Powell, Forrest City, Ark.; Memphis (Tenn.) Hospital Medical College, 1913; member of the Arkansas Medical Society; served during World War I; health officer of St. Francis County; formerly associated with the Indian Service; aged 54; was killed in an automobile accident, August 13.

Henry Garrison Camp, Jasper, Ala.; Birmingham Medical College, 1915; member of the Medical Association of the State of Alabama; formerly chief medical advisory officer of the department of correction and institutions of the state of Alabama; aged 63; died, September 30, of Hodgkin's disease.

Louis Cotten Skinner, Greenville, N. C.; University of Maryland School of Medicine, Baltimore, 1901; member of the Medical Society of the State of North Carolina; past president of the Pitt County Medical Society; aged 62; died, September 20, in the Union Memorial Hospital, Baltimore.

James Charles Egan, Chicago; Keokuk (Iowa) Medical College, 1894; member of the Illinois State Medical Society; at one time professor of proctology at the Illinois Medical College; aged 78; on the staff of the Edgewater Hospital, where he died, October 10, of cerebral hemorrhage.

John King Evans, Malvern, Pa.; Bellevue Hospital Medical College, New York, 1884; member of the Medical Society of the State of Pennsylvania; past president of the Chester County Medical Society; past president of the school board of Malvern; aged 82; died, October 3, of arteriosclerosis.

Daniel Francis White, Buffalo; Niagara University Medical Department, Buffalo, 1893; member of the staffs of the Emergency Hospital of the Sisters of Charity and of the Millard Fillmore Hospital; aged 68; died, August 28, of arteriosclerosis and gangrene of the right foot.

John Curtis Snow, Providence, Ky.; University of Louisville Medical Department, 1909; served as a first lieutenant in the medical corps of the U. S. Army during World War I; formerly mayor of Providence and member of the board of education; aged 59; died, September 28.

Walter Scott Dotson Jr. ✠ Westmoreland, Tenn.; University of Tennessee College of Medicine, Memphis, 1934; was appointed a first lieutenant in the medical reserve corps of the U. S. Army Nov. 21, 1939 and resigned his commission April 14, 1941; aged 34; died, September 26.

Aaron Kurtzman ✠ New York; Universität Bern Medizinische Fakultät, Switzerland, 1923; member of the staff of the New York Post-Graduate Medical School and Hospital; an examining physician at the Governors Island army recruiting station; aged 53; died, September 30.

Wenzel August Medlin, Cleveland; Western Reserve University Medical Department, Cleveland, 1900; member of the Ohio State Medical Association; served during World War I; on the staff of the Lutheran Hospital; aged 65; died, September 18, of chronic myocarditis.

Wilfred Davy Smith, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1911; commissioner of the Workmen's Compensation Board; at one time superintendent of the Ontario Hospital, St. Thomas; aged 61; died suddenly, September 16, in St. John, N. B.

James Michael Bernhard, Amsterdam, N. Y.; Albany Medical College, 1917; member of the Medical Society of the State of New York; served during World War I; aged 50; on the staff of St. Mary's Hospital, where he died, September 25, of coronary thrombosis.

Abram Robert Goodman, Chaumont, N. Y.; University of Oklahoma School of Medicine, Oklahoma City, 1917; member of the Medical Society of the State of New York; served as a lieutenant in the medical corps during World War I; aged 48; died, August 18.

Robert Lucas Pitfield, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; for many years on the staff of the Germantown Dispensary and Hospital; author of "Compend on Bacteriology"; aged 72; died, October 3, of coronary disease.

Eugene Gagnon, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1902; demographer and statistician to the health department of Montreal; aged 65; died, September 3.

Oswald Felix Schiffli, Clewiston, Fla.; Chicago College of Medicine and Surgery, 1917; member of the Florida Medical Association; served during World War I and as a captain in the medical corps of the regular army; aged 51; died suddenly, August 18.

George Waller Dawson, Dalhart, Texas; Kentucky School of Medicine, Louisville, 1894; member of the State Medical Association of Texas; served as a captain in the medical corps of the U. S. Army during World War I; aged 71; died, September 29.

Harry Lycan, Vermilion, Ill.; Marion-Sims College of Medicine, St. Louis, 1899; member of the Illinois State Medical Society; served as Edgar County coroner; aged 69; died, September 27, in Paris (Ill.) Hospital of coronary occlusion.

Samuel L. Caldwell, Colorado Springs, Colo.; University of Pennsylvania Department of Medicine, Philadelphia, 1882; formerly member of the city health department; aged 89; died, September 2, in the Queen's Hospital, Honolulu, Hawaii.

Charles Horace Bradley, Groveton, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1906; for many years president of the Trinity County Medical Society; aged 64; died, October 12, of diabetes mellitus.

William Granville Catlin ✦ Norristown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1921; on the courtesy staff of the Montgomery Hospital; aged 51; died, September 26, of chronic myocarditis and nephritis.

Charles Paul Reed ✦ Indiana, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1907; fellow of the American College of Surgeons; on the staff of the Indiana Hospital; aged 65; died, September 20, of angina pectoris.

Charles E. Scharnagel, Tuscaloosa, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1896; aged 77; died, August 30, in the Norwood Infirmary, Birmingham, of uremia secondary to carcinoma of the prostate.

William LeRoy Donnelly ✦ Davenport, Iowa; State University of Iowa College of Medicine, Iowa City, 1919; aged 49; on the staffs of St. Luke's Hospital and the Mercy Hospital, where he died, October 13.

Gottfried Metzler Sr., Ambler, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1891; on the staff of the Lankenau Hospital, Philadelphia; aged 89; died, October 1, of coronary thrombosis.

Hugh Farrior McLaurine, Midway, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1911; member of the Medical Association of the State of Alabama; aged 54; was found dead, September 29.

Robert Edward Talley, Trion, Ga.; Atlanta Medical College, 1895; member of the Medical Association of Georgia; on the staff of the Riegel Hospital; aged 72; died, September 17, of coronary thrombosis.

John H. Duncan, Millport, Ala.; University of Nashville (Tenn.) Medical Department, 1886; Vanderbilt University School of Medicine, Nashville, 1886; aged 80; died, September 17, in a hospital at Fayette.

Edwin Willis Twyman, Twymans Mill, Va. (licensed in Virginia by years of practice); member of the Medical Society of Virginia; formerly member of the county board of health; aged 88; died, September 15.

Walter Leon Ellis, Vashon, Wash.; St. Louis College of Physicians and Surgeons, 1897; served in France as a captain in the medical corps of the U. S. Army during World War I; aged 67; died, September 28.

Earl Campbell Douglass, Fort Lauderdale, Fla.; Medico-Chirurgical College of Philadelphia, 1904; served as a major in the medical corps of the U. S. Army during World War I; aged 62; died, September 29.

John Walter Dickinson, Oscoda, Mich.; Marion-Sims College of Medicine, St. Louis, 1898; member of the Michigan State Medical Society; owner of a hospital bearing his name; aged 68; died, September 11.

John Robert Tinsley, Middlesboro, Ky.; Hospital College of Medicine, Louisville, 1907; member of the Kentucky State Medical Association; past president of the local school board; aged 58; died, September 18.

Aaron John Bond, Adams, Mass.; New York Homeopathic Medical College, New York, 1883; for many years a member of the school committee and of the board of health; aged 85; died, August 31, of senility.

Ignac Neumann, New York; University of Vermont College of Medicine, Burlington, 1892; consulting physician on the staff of the Hospital for Joint Diseases; aged 78; died, October 1, of prostatic obstruction.

William Frederick Myers ✦ Coal Valley, Ill.; Kentucky School of Medicine, Louisville, 1892; Hospital College of Medicine, Louisville, Ky., 1893; aged 74; died, October 9, of carcinoma of the stomach.

Thomas H. Keeley ✦ Monson, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1923; on the staff of the Wing Memorial Hospital, Palmer; aged 48; died, August 28, of bronchopneumonia.

William Bennett Palamountain ✦ Oakland, Calif.; Cooper Medical College, San Francisco, 1904; aged 66; died, September 18, in Houston, Texas, of hemiplegia, uremia and hypostatic pneumonia.

Raymond Wilson Durkee, Des Moines, Iowa; Rush Medical College, Chicago, 1895; aged 71; died, September 29, in the Broadlawns Polk County Public Hospital of uremia and chronic nephritis.

Clair Wilson, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1917; served during World War I; aged 49; was found dead in bed, September 6, of coronary thrombosis.

John William Joyce, New York; Medical School of Maine, Portland, 1898; for many years on the staffs of the Misericordia and St. Bartholomew's hospitals; aged 67; died, September 4.

Clem Stewart Campbell, South Bend, Ind.; University of Louisville (Ky.) Medical Department, 1908; member of the Indiana State Medical Association; aged 59; died, September 30.

Charles William Green, Selkirk, Man., Canada; Manitoba Medical College, Winnipeg, 1909; aged 71; died, September 23, in the Hospital for Mental Diseases of coronary thrombosis.

James A. Smith, Lyerly, Ga.; University of Louisville (Ky.) Medical Department, 1880; member of the Medical Association of Georgia; aged 85; died, August 17.

John Henry Becker, Palm Springs, Calif.; College of Medical Evangelists, Los Angeles, 1925; aged 42; died, August 29, of arteriosclerotic heart disease.

Lincoln Bond Griswold ✦ Utica, Ill.; Loyola University School of Medicine, Chicago, 1923; aged 46; died, September 30, of lymphocarcinoma.

Sam P. Ford ✦ Parkville, Mo.; Physio-Medical College of Indiana, Indianapolis, 1900; aged 72; died, August 25, of coronary disease.

R. T. Strange, Fort Smith, Ark. (licensed in Arkansas in 1903); aged 70; died, October 1, of pulmonary tuberculosis.

John Harold Cook, Terre Haute, Ind.; Miami Medical College, Cincinnati, 1906; aged 61; died, September 5.

George H. Hess, Philadelphia; College of Physicians and Surgeons, Baltimore, 1897; died, September 2.

Fifield B. Berry, Chicago; National Medical University, Chicago, 1899; aged 64; died, September 18.

John Goethals, Brooklyn; United States Medical College, New York, 1880; aged 86; died, August 24.

DIED WHILE IN MILITARY SERVICE

George Clayton Wassell ✦ Pittsburgh; St. Louis University School of Medicine, 1935; U. S. Army School of Aviation Medicine, Randolph Field, Texas, 1942; on the staff of the Christian H. Buhl Memorial Hospital, Sharon, Pa.; called to active service as a first lieutenant in the medical reserve corps of the U. S. Army April 1, 1941, appointed a captain June 1, 1941; assigned to U. S. Bomber Command, as flight surgeon for overseas duty September 1942; aged 32; was killed in an airplane accident over the British Isles, October 3.

Raymond Cunningham Stiles ✦ Captain, M. C., U. S. Army, Kansas City, Kan.; Baylor University College of Medicine, Dallas, Texas, 1937; entered the medical corps of the U. S. Army as a first lieutenant in 1939, was appointed a captain in 1942; aged 30; was killed in an airplane accident about 30 miles from Ponce, Puerto Rico, October 1.

Bureau of Investigation

CEASE AND DESIST ORDERS

Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment of the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 added to the Food and Drug Administration's control of the advertising claims and statements made on the labels of medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in circulars, newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual, manufacturer or distributor cited is ordered to cease and desist from practices which have been declared objectionable. In some cases the claims cited have been discontinued by the firms several months (or even longer) before the issuance of the order. Abstracts of some of the orders issued in 1942 follow in this form: name of product, name of distributor, date of issuance of complaint, date of issuance of Cease and Desist Order and terms of the order.

Cravex.—Plant Products Company, Inc., North Hollywood, Calif., and James R. and Sara B. Plant, its officers; complaint issued June 2, 1939; order issued June 27, 1942. Order prohibited disseminating any advertisements representing that this product is an effective treatment for alcoholism, will relieve or remove craving for alcoholic liquors or enable a person addicted to excessive drinking to discontinue the habit. The Commission's findings were that "Cravex" is of no value in the treatment of alcoholism; that, conceding that it might be of some value in the after-care or building-up treatment when an aversion to or stoppage of the use of alcoholic liquors has been attained and the toxins produced in the system by alcohol have been eliminated, the product would then be of value only as an adjunct or part of a general tonic treatment. Still earlier (October 1937) Sara B. Plant, trading as the Cravex Company, then at Burbank, Calif., had stipulated with the Commission that she would cease representing that Cravex was a cure for alcoholism, would cause the craving for liquor to disappear or would have any direct effect on the liquor habit unless this latter claim was limited to soothing the nerves and improving the appetite.

Houston's Mineral Water.—W. T. Houston, trading as Houston's Mineral Well, Newmarket, Tenn.; complaint issued Aug. 22, 1941; order issued June 6, 1942. Order prohibited misrepresentations that this water had any value in treating disease in excess of action of ordinary drinking water; was efficacious in kidney, gallbladder and stomach disorders or diabetes or contained any ingredient which would supply a deficiency of insulin or enable a diabetic person to discontinue the use of insulin; that the product would have any effect in treating blood pressure or ailments of the prostate gland or in building up the blood; that it would restore health or supply any minerals needed in sustaining health or that it contains minerals in quantities sufficient to be valuable in the treatment of acidity, acne, apoplexy, anemia, Bright's disease and some twenty-five other disorders.

Life Lite.—Ultra-Violet Products, Inc., Los Angeles; complaint issued Dec. 15, 1940; order issued June 16, 1942. Order prohibited these misrepresentations: that this device, which radiates ultraviolet rays, is a sun lamp or affords benefits to the skin or general health comparable to those given by natural sunlight; that it is a cure, remedy or adequate treatment for barber's itch, ringworm, athlete's foot, eczema, psoriasis or erysipelas; that it possesses any value in the treatment of asthma, hay fever, bronchitis, colds, sinus trouble or anemia; that it builds up resistance to disease, has any tonic effect on the blood or stimulates the skin tissues except by its irritating effect; that it quiets the nerves, improves the general tone of the body, induces sleep, relieves pain or builds new tissues, except as far as its use may result in the production of vitamin D. The order further prohibited the concern from circulating any advertisement which fails to reveal that excessive exposure to the lamp, either as to proximity or length of time, may injure the user; that the lamp should not be used in cases of pellagra, lupus erythematosus or certain types of eczema, or unless the eyes are protected by goggles. The order permitted, however, that it would be sufficient for the advertisements to state, "Caution: Use only as directed," provided that sufficient warning was given on the label.

The Thomas Home Treatment Kit, Trichotone and Trichovita.—The Thomas Management Corporation and the Paul A. Thomas Trust with principal office in Chicago, and officers and other individuals: Paul A. Thomas, Sr., Paul A. Thomas, Jr., Catherine M., Norbert J., Ruth and Madeline Thomas; complaint issued Dec. 26, 1940; order issued June 10, 1942. Order prohibited misrepresentations that the Thomas preparations are a cure or remedy for dandruff in excess of removal of dandruff scales, or an effective treatment for any form of itching scalp in excess of giving temporary relief from such itching when it is not caused by systemic or constitutional conditions, that these products induce hair growth and will prevent abnormal loss of hair or induce a normal growth on thin and bald spots or prevent, cure, remedy or benefit baldness; that "Trichovita" and "Trichotone" supply elements essential to hair growth, have therapeutic value in stimulating such growth and will rejuvenate the formative cells from which hair grows.

Ward's Posture-Aid Health Belts, Diab Reducers and DuPont Velutex Perforated Reducers.—Montgomery Ward and Company, Chicago; complaint issued Jan. 20, 1941; order issued June 30, 1942. Order prohibited the concern from representing that wearing of these products would reduce excess flesh and accomplish other related results, whereas such use actually would not cause a reduction of local body tissue or effectively remove fat, although the garments would afford artificial support, lessen the prominence of pendulous abdomens and change the physical appearance by compressing that portion of the body about which they were placed. The order further directed the company to cease using the words "Health" or "Reducers" as part of the designation for such devices when sold in interstate commerce; to stop representing that the wearing of such devices will remove excess flesh or will mold the abdomen gently or correct figure faults in excess of compressing that part of the body about which the devices are placed and only to that extent improve the appearance of the wearer while the devices are in use. The company also was ordered to cease representing that the devices will correct pendulous abdomens or take two or three or any certain number of inches from the wearer's diaphragm and make it easy for him to reduce.

MISBRANDED PRODUCTS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the Federal Security Agency

[EDITORIAL NOTE.—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D. D. N. J. and foods, F. N. J. The abstracts that follow are given in the briefest possible form: (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the date of shipment, (4) the composition, (5) the type of nostrum, (6) the reason for the charge of misbranding and (7) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

T-P Preparation.— Tee Pee Chemical Company, Durham, N. C. Shipped Jan. 26, 1940. Composition: the liquid form was essentially water, berberine sulfate, boric acid, borax and bismuth subnitrate; tablet form consisted essentially of cubeb with a laxative plant drug suggesting cascara sagrada, ferrous carbonate and resinous material such as Venice turpentine and copaiba. Misbranded because of false representations on label that the product was a treatment for gonorrhea.—[*D. D. N. J., F. D. C. 391; March 1942.*]

Vibratherm.—Vitaphore Appliances, Inc., South Bend, Ind. Shipped between April 29 and May 10, 1940. Composition: a black plastic cylindrical applicator with electrical connection so constructed as to apply heat and vibration to any portion of the body desired. Falsely represented as efficacious in the treatment of pelvic infections, prostatic trouble, melancholia, painful urination and severe pains in the back, loins and thighs.—[*D. D. N. J., F. D. C. 392; March 1942.*]

Redus-Aid Candy.—Illinois Vitamin Products Company, Evanston, Ill. Shipped Sept. 6 and 7, 1940. Composition: chiefly sugars (including sucrose, glucose and invert sugar), fats, proteins and a small amount of mineral matter including salt and a calcium compound. Misbranded because statements and designs on the labels representing that the product would cause a loss of weight easily and sensibly, curb the appetite for sweet, rich foods, enabling the user to cut down on the amount of food without pangs of hunger, and help remove excess fat and increase bodily vigor were false and misleading.—[*D. D. N. J., F. D. C. 397; March 1942.*]

Venus Tablets.—Thoro Sales Service, Los Angeles. Shipped between May 6 and Sept. 22, 1940. Composition: rhubarb root, kelp, Irish moss and green leafy material; accompanying specimen of "V-76 Laxative Tablets" contained dry rhubarb root, cranberries and green leafy material. Venus Tablets misbranded because label falsely implied that the product would help control body weight, enable the user to attain an ideal and slender form, lose ugly fat and feel and look better. Misbranding also charged against Venus Tablets and V-76 Laxative Tablets because labels did not properly warn against their use by children or against unsafe dosage or duration of taking them.—[*D. D. N. J., F. D. C. 343; March 1942.*]

Correspondence

PATHOLOGIC RENAL CHANGES

To the Editor:—In the excellent and clear article concerning pathologic renal changes by Dr. J. P. Simonds in THE JOURNAL, September 12, are two points concerning which I would appreciate further enlightenment:

1. Dr. Simonds states that because of water loss from the blood in its passage through the glomeruli the osmotic pressure of the plasma proteins in the peritubular capillaries is higher than elsewhere and that the hydrostatic pressure of the blood in these capillaries is lower than the osmotic pressure; he then states that "water and solutes withdrawn by tubular reabsorption from the glomerular filtrate into the surrounding tissue spaces are quickly drawn into the peritubular capillaries by the increased osmotic pressure of the plasma proteins of the blood in these vessels." Admitting the first statement, I believe it requires some explanation for the second statement that solutes as well as water are drawn into capillaries because of the increased osmotic pressure of their contents; the drawing in of water goes without saying, but the drawing in of solutes would further increase the osmotic pressure and does not seem evident.

2. Dr. Simonds states that metallic poisons such as mercury bichloride are filtered out through the glomeruli and not reabsorbed by the tubular epithelium but that they are concentrated in the tubular lumens by the absorption of water and in this way damage the proximal convoluted tubules. Is it not possible that such poisons damage tubular epithelium because they are excreted by those epithelial cells and are therefore concentrated there? How else does one explain that mercury and uranium affect especially the distal parts of the proximal convoluted tubules whereas chromium affects especially the proximal and middle parts of the convoluted tubules? Why should they not all affect the same portions if they are excreted by the glomeruli and cause their damage simply by their concentration due to absorption of water? This selectivity suggests that they are excreted by different portions of the tubules.

ERNEST B. ZEISLER, M.D., Chicago.

[The letter was referred to Dr. J. P. Simonds, who replies:]

To the Editor:—1. In answering the first question in the letter of Dr. Zeisler a distinction must be made between the total osmotic pressure of the plasma and that part of the total which is effective in controlling the exchange of fluids between blood and tissues. The solutes in the plasma are responsible for the greater part of its total osmotic pressure but, because the walls of the capillaries are permeable to them, they have little or nothing to do with the exchange of fluids between blood and tissue spaces. For the latter, the osmotic pressure of the plasma proteins and the hydrostatic pressure of the blood in the capillaries are responsible. The drawing of solutes into capillary blood will obviously increase the total osmotic pressure of the plasma but will not alter the effective osmotic pressure of the plasma proteins. The latter will be reduced by the drawing in of water as a result of dilution.

The physicochemical conditions in the system composed of the blood in the peritubular capillaries and the fluid in the peritubular spaces are similar in all essential respects to those in Donnan's equilibrium, in which crystalloids pass through a semipermeable membrane. In Donnan's experiment time is required for equilibrium to become established between the solution containing colloid and crystalloid on one side, and that containing crystalloid only on the other side, of the membrane. This type of equilibrium between the blood in the peritubular capillaries and the surrounding tissue fluids (water and solutes) is therefore never complete because the plasma in the peritubular capillaries is being continually changed by the flow of blood. In this manner there is maintained a constant physicochemical condition favorable to the rapid and continuous passage of water and solutes from the tissue spaces into the peritubular capillaries.

2. The view that such poisons as the salts of mercury and uranium and of chromic acid are excreted by the tubular epithelium has certain attractions but also serious difficulties. Not the least of these difficulties is the fact that excretion of any substance by the tubules of the mammalian kidney must take place against the very high osmotic pressure of the concentrated plasma proteins in the peritubular capillaries. It is only the proteins of the plasma that are concentrated in these vessels.

The tubules of the aglomerular kidneys of certain fish are capable of excreting water and all the other constituents of urine. This normal function in these animals is not performed against an osmotic pressure of plasma proteins in peritubular blood which has been augmented by glomerular filtration, as in the mammalian kidney. The tubules of the human kidney, on the other hand, are not known to excrete any of the normal endogenous constituents of the urine. All the crystalloidal substances in the urine are excreted by glomerular filtration. The three poisons mentioned are crystalloids. It is a natural supposition, but not necessarily an established fact, that they are also excreted by the glomeruli. The tubules of the mammalian kidney can, however, excrete certain extraneous substances, such as phenolsulfonphthalein, diodrast and even exogenous creatinine. That is, excretion by the tubules is a potential function and it cannot be categorically denied that they may excrete the crystalloidal poisons mentioned. Phenolsulfonphthalein, diodrast and exogenous creatinine, all essentially nontoxic to the kidneys, are excreted both by glomerular filtration and by tubular excretion. It is not impossible, therefore, that these crystalloidal poisons may also be excreted by both mechanisms. While the possibility of a dual type of excretion is admitted, it does not appear likely that these poisons are excreted solely by the tubules, as is implied in the foregoing letter.

The selective effect of these poisons on specific portions of the proximal convoluted tubules is not an insurmountable difficulty in accepting the view that they are excreted only by glomerular filtration. Variations in susceptibility of the epithelium in different parts of the renal units are known to exist. Any nonabsorbable poison in the glomerular filtrate attains its greatest concentration in Henle's loop, and yet the epithelium of this portion of the nephrons and that of the distal convoluted tubules show little evidence of damage by the poisons under consideration. There is also a difference in degree of toxicity of these three substances. For example, it was found that 3 mg. of mercury bichloride per hundred cubic centimeters of circulating blood given intravenously will kill a dog in five days or less, while 3 mg. of potassium dichromate or of uranyl nitrate in the same proportion were not fatal.

In unpublished experiments designed to determine the minimal amount of these poisons that will produce visible damage to the tubular epithelium after intravenous injection, their selective action on the epithelium at different levels of the proximal convoluted tubules was substantially confirmed. Presumably, the chromium, mercury and uranium are the toxic elements in their respective molecules. One mg. of potassium dichromate ($K_2Cr_2O_7$) contains 6.79×10^{-3} gram atoms of chromium, 1 mg. of mercury bichloride ($HgCl_2$) contains 3.69×10^{-3} gram atoms of mercury and 1 mg. of uranium (uranyl) nitrate [$UO_2(NO_3)_2$] contains 1.995×10^{-3} gram atoms of uranium. If absorption is continuous and progresses at essentially the same rate throughout the whole course of the proximal convoluted tubule, it is evident that there would be a greater concentration of chromium atoms at a higher level in these tubules than of either mercury or uranium. This may account for the visible effects of potassium dichromate in the first third of the proximal convoluted tubules.

J. P. SIMONDS, M.D., Chicago.

IRRADIATED ERGOSTEROL POISONING

To the Editor:—Your issue of May 16 has reached me somewhat belatedly, for reasons that need not be elaborated. I note therein a report by Tumulty and Howard on 2 cases of irradiated ergosterol poisoning. It is made quite clear in the text of the paper that the patients were fed mixtures of calciferol, lumisterol, tachysterol and toxisterol, and I cannot see any reason for attributing the intoxication to calciferol rather than to one or other of the nonantirachitic substances. It is perhaps significant that in this country, where irradiated ergosterol went out of use over ten years ago and was entirely replaced by preparations of pure calciferol, there have been no reports of intoxication, though this may have been due to the conservative dosage adopted by the majority of practitioners in this country. Moreover, tachysterol and toxisterol, and possibly one or both of the suprasterols, have a toxic action and little, if any, antirachitic effect; with crude irradiated ergosterol mixtures, therefore, any toxic effect may well be due entirely to one or other of these compounds and not to vitamin D at all. Although calciferol itself is probably toxic in very large doses, I suggest that one must treat with considerable skepticism all reports of "hypervitaminosis D" in human subjects that had not received pure calciferol as the sole antirachitic agent.

May I also suggest that the authors of the paper in question have been unfortunate in referring frequently therein to "ergosterol poisoning"? Ergosterol itself is, as far as we know, a completely inert substance physiologically, and it would be a pity if, by casual reading, any one should gain the impression from their article that it is possible to produce toxic effects with it. The phrase "irradiated ergosterol poisoning" is not open to this criticism but is subject to another, namely that it refers to a mixture of several substances and that we seldom, if ever, know the proportions in which they are present or the extent to which each may be responsible for any toxic effects.

A. L. Bacharach, M.A., F.I.C., Middlesex, England.

ARTIFICIAL INSEMINATION

To the Editor:—In the interesting article by Dr. Alan F. Guttmacher on artificial insemination on page 442 of The Journal for October 10 there is a serious omission. The author cites certain indications for artificial insemination among which are impotence, hypospadias in the male, and some pathologic conditions in the female. He omits to state, however, that the Huhner test should be made in all of these conditions before resorting to artificial insemination. I have seen many cases both in male and female in which there were all sorts of pathologic conditions and still the Huhner test disclosed live spermatozoa on and within the cervix, showing that the pathologic condition did not interfere with the deposit of the spermatozoa. It is not at all unusual for impotent patients to impregnate their wives. This is the chief advantage of the Huhner test in the diagnosis of sterility. If I find spermatozoa within the cervix, I do not care what pathologic conditions are found for I know that the male is able to deposit his semen in the right place.

In discussing aspiration of the testicles and injecting the aspirated testicular fluid into the female cervix, I was the first to try this procedure and reported several attempts on pages 103, 104, and 105 in my book "Sterility in the Male and Female" published in 1913. All my attempts were failures, but Kenneth M. Walker on page 177 in his book "Male Disorders of Sex" published in London in 1930 gives a successful case by Mr. C. H. Mills, an English surgeon.

Max Huhner, M.D., New York.

IN DEFENSE OF PHYSICAL THERAPY

To the Editor:—Although Sister Kenny's concept of treating poliomyelitis in the acute stage had a purely empiric origin, her observations were so acute that they approached truth, as truth is revealed in nature. The rationale of her physical therapeutic methods is finding accruing support as the newer knowledge of the pathologic physiology of this disease unfolds.

The five papers in The Journal which were originally read in the Panel Discussion on Poliomyelitis at the Ninety-Third Annual Session of the American Medical Association enable the reader to contrast and weigh the contributions of the science of medicine, and the art of its practice, to the treatment of a single important disease. Having read these papers, one feels that, although physical therapy is a tool admittedly replete with dogma, it is neither just nor fair to blame the technical assistant for the poor results of a treatment prescribed by the doctor.

"The lack of knowledge among physicians of what physical therapy means is not their fault," writes Ober (The Journal, October 17, p. 514). Who shall take the blame for this ignorance?

F. A. Hellebrandt, M.D., Madison, Wis.

CHEST INJURY AND CORONARY OCCLUSIONS

To the Editor:—In the October 3 issue of The Journal, in a communication on chest injury and coronary occlusion (p. 392), Master suggested that the use of acute coronary thrombosis in the title of my paper (Leinoff, H. D.; Acute Coronary Thrombosis in Industry, *Arch. Int. Med.* **70**:33 [July] 1942) was misleading. This is untrue since I definitely have suggested that in all these cases a better diagnostic term would have been acute traumatic heart disease with myocardial and pericardial damage. The conclusion also stresses the importance of a differential diagnosis between acute occlusion and traumatic heart damage.

He has further confused this subject by attempting to discuss physical exertions and direct nonpenetrating chest injuries as one. I should like to take this opportunity of stressing the fact that these two types of injuries should be considered separately at all times, since the mechanisms and the end results are entirely different.

Capt. Harry D. Leinoff, M. C., U. S. Army,
Station Hospital, Army Air Forces Advanced
Flying School, Napier Field, Ala.

IMPROPER USE OF THE WORD ETIOLOGY

To the Editor:—One of the commonest errors in medical writing is in use of the word etiology. The precise meaning of this word, derived from the Greek words αἰτία and λόγος, is the science or study of causation. It is therefore incorrect to say the "etiology of the disease is unknown." Authors who make this common error intend to say that the cause of the disease is unknown and not that the science or study of causation is unknown.

Similar mistakes are often made with other words ending in "logy." There is no excuse for the outrageous expression "there was no pathology," as the author who writes in this manner would not dream of saying "there was no ophthalmology" in place of stating that he found no abnormal changes in the eyes. Perhaps the worst example of medical jargon is the expression "the patient has a negative serology." Some even speak of "negative serologies."

Howard Fox, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

CHICAGO, Feb. 15-16, 1943. Sec., Council on Medical Education and Hospitals, Dr. H. G. Weiskotten, 535 North Dearborn Street, Chicago.

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Oct. 31, page 715.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written. Part I.* Various centers, Feb. 4. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* Chicago, Dec. 4-5. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Various centers, Feb. 13. *Oral. Part II.* May 1943. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. All Groups.* New York, Dec. 13-16. Los Angeles, Jan. 15-16. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* New York, May or June. Final date for filing application is March 1. Sec., Dr. Dean M. Lierle, 1500 Medical Arts Bldg., Omaha, Neb.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Feb. 12. *Oral.* St. Louis, March 27-28. Final date for filing application is Dec. 1. New York, April 24-25. Final date for filing application is Jan. 1. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF UROLOGY. February 1943 (tentative). Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis.

South Dakota July Report

The South Dakota Board of Medical Examiners reports the written examination for medical licensure held at Pierre, July 21-22, 1942. The examination covered 13 subjects and included 100 questions. An average of 75 per cent was required to pass. Two candidates were examined and passed. Two physicians were licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Columbia University College of Physicians and Surgeons		(1932)	1
Temple University School of Medicine		(1941)	1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1938)	Washington
McGill University Faculty of Medicine		(1937)	Minnesota

School	LICENSED BY ENDORSEMENT	Year Grad.
American University of Beirut School of Medicine		(1934)

Oregon Reciprocity Report

The Oregon State Board of Medical Examiners reports 10 physicians licensed to practice medicine by reciprocity and 3 physicians so licensed on endorsement of credentials of the National Board of Medical Examiners on July 24. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1941)	Washington
Rush Medical College		(1924)	Illinois
University of Louisville School of Medicine		(1940)	Kentucky
Harvard Medical School		(1937)	Penna.
Washington University School of Medicine		(1939)	Missouri
University of Nebraska College of Medicine		(1930)	Nebraska
University of Oregon Medical School		(1939) Missouri, (1940)	California
Marquette University School of Medicine		(1941)	Minnesota
Osteopath *			Missouri

School	LICENSED BY ENDORSEMENT	Year Grad.
Yale University School of Medicine		(1930)
University of Oregon Medical School		(1938), (1939)

* Licensed to practice surgery only.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Suspension of License for Fraud and Deceit; Use of Secret Cancer Formula.—The Board of Regents of the University of New York suspended for one year the license of the petitioner, a physician, on the grounds (1) that he had been guilty of fraud and deceit in the practice of medicine and (2) that he had undertaken to cure or treat a disease by a secret formula. The petitioner appealed to the supreme court, appellate division, third department, which reversed the disciplinary order, and the Board of Regents and the medical committee on grievances then appealed to the Court of Appeals of New York.

The patient in this case was suffering from a cancerous growth on the side of her face and neck for which she was receiving treatment at Queens General Hospital. She had been placed on the critical list and, in August 1938, was discharged as beyond cure with but a few weeks to live. She was advised to continue radiation therapy at the clinic, however, and she did so. No benefit resulted from this treatment. The patient was impecunious and some time in September or early October an interviewer at the hospital told her that he knew a man who could positively cure cancer. Thereafter the patient was taken to one Blakeney, apparently the discoverer of the salve which was later used. He exhibited photographs of cures he claimed to have effected on others and made various representations concerning the efficacy of his treatment. He explained that he was not a physician and refused personally to remove the patient's bandages or to undertake any treatment. Arrangements were eventually made for the medical services to be rendered by the petitioner, who for some years had known the formula for the salve, was familiar with all its ingredients and had previously used it on healthy skin with no ill results. For ten days thereafter the salve was applied to the diseased tissues, at first once every three hours and later once every four hours. After ten days olive oil was applied until January 1939, when the treatment was completed. At the time of the preliminary investigation of the case before the subcommittee of the grievance committee, the petitioner disclosed to the committee the ingredients of the salve and the details of his use of it, and later he divulged the formula, when requested, and furnished a detailed description of treatment to the full committee.

However much latitude there may be in the handling and in the decisions of cases committed to other administrative tribunals, said the Court of Appeals, the education law provides that the Committee on Grievances need not be bound by the laws of evidence in the conduct of its proceedings, but its determinations must be founded on sufficient legal evidence to sustain them. Hearsay evidence alone does not meet the test; the evidence must be of a probative character. In this case, said the court, there was no evidence that the petitioner practiced fraud and deceit; that charge was therefore abandoned on appeal. Reliance was placed only on the second charge, namely, that the petitioner offered, undertook or agreed to cure or treat disease by a secret method, procedure, treatment or medicine or that he treated, operated and prescribed for a human condition by a method, means or procedure which he refused to divulge on demand to the committee on grievances. The commonly accepted and understood meaning of what is secret, said the court, is that which is intentionally undisclosed or, as Webster puts it: "Something studiously concealed, a thing kept from general knowledge, what is not, or is not to be revealed." The noun "secret" is similarly defined in the Century Dictionary. When used in a penal law, the word "secret" means "studiously concealed." In law, a "secret" is something "kept from the knowledge or notice of persons liable to be affected by the act, transaction, deed or other thing spoken of." It is something intentionally and studiously concealed. The Court of Appeals then said that within the commonly accepted meaning of the term "secret" and as used in the statute under consideration, it could find no sufficient legal evidence in the case that the petitioner offered, undertook or agreed to cure or treat the patient

by any secret method, procedure, treatment or medicine. There was nothing secret about the medicine used or the method, treatment or procedure adopted. Neither did the petitioner studiously conceal the method, procedure or treatment which he adopted or the medicine which he used. The mere fact that the details of the formula were not known to the patient or to some other particular person did not make it secret.

There was affirmative and uncontradicted evidence that the petitioner had proposed to disclose to the medical society both the formula and the treatment if it had merit and that he divulged on demand to the committee on grievances the method, procedure and treatment adopted and used by him. The attempt to help the patient by treatment outside of electrotherapy, the court said, was known to and approved by physicians connected with the hospital in whose clinic she was under treatment. The evidence was conclusive that the petitioner made no promise or representation that the treatment would cure the patient. Even had he done so, in the absence of fraud and deceit, it would have been merely an expression of opinion and he would have committed no offense under the statute. If Blakeney at any time made any such representation, it was not made in the presence of the petitioner or with his knowledge. By every test set by the legislature, concluded the Court of Appeals, the petitioner committed no act condemned by the statute for which discipline could be imposed. The judgment appealed from was therefore affirmed.—*Stammer v. Board of Regents of University of State of New York, 39 N. E. (2d) 913 (N. Y., 1942).*

Evidence: Admissibility of Result of Lie Detector Test.—The defendant was convicted of the crime of manslaughter and subsequently appealed to the Supreme Court of Michigan. Prior to the trial he submitted himself to a lie detector test the result of which, on the objection of the prosecuting attorney, was not submitted to the jury. On appeal, the defendant urged that the trial court erred in refusing to allow the results of the test to be admitted in evidence.

The Supreme Court said that the general principle of the acceptance of the lie detector test is set forth in 20 Am. Jur. p. 633 as follows: "Physiological or psychological deception tests used as instruments for the ascertainment of the truthfulness of a witness are still too much in the experimental field for the courts to approve of their general use. The deception tests devised by scientists are of the following three broad types: The association-reaction tests in which the time the subject takes to think of words associated with those in a list given him, some of which are neutral and some of which may evoke a guilty association, is carefully measured; the respiratory test, which is based upon the hypothesis that the breathing of the subject varies according to whether he is telling the truth; and the systolic blood pressure test. The instances in which such criteria have been subjected to judicial scrutiny are relatively infrequent. Those which have passed upon the question have held that the systolic blood pressure deception test for determining the truthfulness of testimony has not yet gained such standing and scientific recognition as to justify the admission of expert testimony deduced from tests made under such theory." The court could see no reason why, under the circumstances of this case, the results should have been admitted. There was no testimony offered indicating that there is at this time a general scientific recognition of such tests. Until it is established that reasonable certainty follows from such tests, it would be error to admit in evidence the result thereof. The judgment of conviction was affirmed.—*People v. Becker, 2 N. W. (2d) 503 (Mich., 1942).*

Medical Practice Acts: Graduate of Foreign Medical School Denied Licensure.—The Ohio medical practice act provides that an applicant, among other things, must present a diploma from a medical institution in the United States in good standing, as defined by the board, at the time the diploma was issued, or a diploma or license approved by the board which conferred the full right to practice all branches of medicine or surgery in a foreign country. The petitioner in this case obtained his premedical education in the United States and thereafter received a diploma from the University of Lausanne, in Switzerland, which conferred on him the degree of Doctor of Medicine. Under the laws of that country no person other than a Swiss citizen may be licensed to practice medicine. The petitioner returned to the United States and applied to the Ohio state medical board for permission to take the regular examination for a license to practice medicine. Permission to take the examination was denied and the petitioner commenced a mandamus action in the Supreme Court of Ohio to require the defendants, members of the medical board, to admit him to such examination.

The defendants demurred to the petition and the question presented for determination by the court was whether or not the petitioner's presentation of a diploma from the University of Lausanne in Switzerland required the defendants to permit him to take the examination. The petitioner contended that a citizen of Switzerland who came to this country and sought to take the medical examination would be permitted to do so under proper construction of our statutes, whereas a citizen of the United States who graduated from an accredited medical school in Switzerland but who could not be licensed to practice in that country would not be permitted to take the examination. Under the Ohio act, said the court, two things are necessary, (*a*) the diploma or license, as the case may be, must be approved by the board, and (*b*) such diploma or license must confer the full right to practice all branches of medicine and surgery in a foreign country. The act makes no distinction between an alien and a citizen and is a valid and constitutional enactment. Either a diploma or a license may be presented, and whichever is presented must be approved by the board. The right to approve exists at the time the diploma is presented, notwithstanding previous action as to the good standing of the institution which issued the diploma. The board had a right in the exercise of its discretion to withhold approval of the diploma. If, said the court, the act does an injustice, the appeal for relief must be made to the legislature. The defendants' demurrer to the plaintiff's mandamus petition was accordingly sustained, in effect upholding the action of the board in refusing to the petitioner the right to take the examination.—*State ex rel. Analis v. Hunter, 39 N. E. (2d) 851 (Ohio, 1942).*

Medical Societies: Jurisdiction of Court to Reinstate Expelled Member.—About April 1933 certain members of the Kern County Medical Society, as taxpayers, instituted an action to enjoin the county supervisors from accepting at the county hospital patients who could afford to pay in whole or in part for necessary care and medical service. Injunctive relief was granted. Commencing in the year 1931 and each year to and including 1938, the Kern County Medical Society adopted a resolution providing that failure on the part of any member to resign from the staff of the Kern General Hospital "within a reasonable time, while present unsatisfactory conditions exist in said hospital shall be construed as violation of ethics, and shall make such member "liable to disciplinary action in accordance with the constitution and by-laws. The petitioner, a member of the medical society, was on the staff of the hospital. Both in 1932 and in 1933 charges were filed against him for his failure to resign from the staff, but no disciplinary action was taken at that time. In 1934 the society adopted a new constitution and by-laws. The petitioner signed them along with the other members. Among other things, the by-laws provided that "It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of the community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession."

In September 1935 disciplinary proceedings were instituted by the society against the petitioner in which a violation of the quoted provision of the by-laws was alleged. It was charged that he had for several years participated in a political policy to monopolize the care, treatment and hospitalization of the sick by the county of Kern at public expense by the unlawful use of the county hospital irrespective of the lawful right of patients to be treated at public expense, with the object and purpose of interfering with the reasonable competition among physicians in the community; that as a result of such political policy and practice the county hospital became overcrowded and understaffed so that it became impossible to render adequate service. It was also charged that the petitioner lent his coopera-

tive endeavors in such a way as to create a political issue in the campaign interests of the members of the board of supervisors and contrary to the dignity and honor of the medical profession. The petitioner filed a denial of the charges; hearings were had before the committee on grievances and the board of directors of which the petitioner had due notice but which he voluntarily did not attend. As a result of the hearings, the petitioner was expelled from the society. Appeals from the expulsion order were taken to the California Medical Association and to the American Medical Association, each of which in turn affirmed the order of expulsion. Following this, the petitioner applied unsuccessfully to the superior court of Kern County for a writ of mandamus to compel his reinstatement, and from that adverse judgment he appealed to the district court of appeal, 4th district, California, which reversed the findings of the trial court and, in effect, ordered the petitioner's reinstatement to membership. (*Smith* v. *Kern County Medical Association*, 112 P. (2d) 268; J. A. M. A. **117**:63 [July 5] 1941.) Accordingly the society prosecuted an appeal to the Supreme Court of California.

The trial court found, said the Supreme Court, that the amendments to the constitution and by-laws were regularly and duly adopted and that the petitioner expressed his approval of such amendments and consented to be governed thereby by his signature duly and regularly endorsed thereon; and that he agreed to be bound by the principles of ethics adopted by the society. It also found that the charges against the petitioner constituted a violation of the principles of medical ethics and of the laws of the society; that the proceedings against the petitioner were all duly and regularly taken; that neither the resolution adopted by the society nor the expulsion proceedings were part of any unlawful plan or scheme, and that the petitioner would not be deprived of any property right. There was sufficient evidence in the record, in the opinion of the Supreme Court, to support these findings of the trial court. In any proper case involving the expulsion of a member from a voluntary unincorporated association, the only function that the courts may perform is to determine whether the association has acted within its powers in good faith, in accordance with its laws and the law of the land. The procedure provided by the rules of the society was followed and the petitioner was accorded every opportunity to defend himself. He may not be allowed to complain that hearings, of which he had due notice and opportunity to attend, were conducted in his absence when he voluntarily absented himself from the hearings.

The petitioner contended that the termination of proceedings instituted against him in 1932 and 1933 without disciplinary action amounted to an acquittal of the charges and precluded the society from again accusing him. There was no merit in this contention, said the Supreme Court. The practices which formed the basis of the charge were continuing, and the present accusation was filed on the failure of the petitioner to resign after the adoption of the 1935 resolution. Not only was it the service on the hospital staff which the society ruled to be a breach of ethics but such violation was expressly deemed to be service on the staff while the conditions persisted which were contrary to the rules of ethical practice formulated by the society. The courts may not properly declare, said the Supreme Court, that such a society may not expel a member who persists in practices which, by the rules of the society and the written agreement of the member himself, are unethical.

The petitioner argued that the provisions of the by-laws of which violation was charged were part of other provisions relating to contract practice and that since he was not engaged in contract practice as such he should not be expelled for taking an active part in creating the same conditions condemned in relation to contract practice. It was not necessarily the practice by name which was disapproved by the society, held the Supreme Court, but certain express conditions thereby created. The record discloses and the society found that the petitioner had continued an activity which created such conditions. Any matter of policy involved in the adoption of the by-laws, the code of ethics and the resolution in conformity therewith was a question for the membership itself and may not be considered by a court so long as it is not shown that such policy is in violation of law.

The Supreme Court, in conclusion, said that the contractual relation between the society and one of its members is that which exists by virtue of the rules of the society, and so long as the society acts toward him in accordance with those rules there is no violation of the contract. The judgment of the superior court sustaining the petitioner's expulsion was affirmed. —*Smith v. Kern County Medical Association, 120 P. (2d) 874 (Calif., 1942).*

Workmen's Compensation Acts: Refusal to Submit to Operation.—While in the employ of the appellant company, the claimant received severe injuries to his pubic bone. Roentgenograms were taken on three separate occasions by three different physicians, and the claimant, on the advice of a fourth physician, wore a brace for several months. At the end of that time he was advised that the brace had failed in its purpose, and it was suggested that he submit to an operation in an endeavor to fuse the broken and displaced pieces of bone. The physician who recommended this operation would not guarantee the results. The claimant then consulted the physician who had taken the first roentgenograms and was advised by him that an operation would not improve his condition. The same advice was given to him by another physician of his own selection. He therefore refused to submit to the operation. Subsequently an award was granted the claimant under the workmen's compensation act, the award was affirmed by the circuit court and the company appealed to the Court of Appeals of Kentucky.

The company denied liability because of the claimant's refusal to submit to the operation. Counsel for both parties agreed that when there is no contrariety of evidence on the question compensation will be denied if the claimant is able but refuses to submit to an operation when the latter is not unusually hazardous and will practically eliminate the disability. In this case, although several physicians testified that the operation was not unduly hazardous and that in their opinion a complete cure would be effected, they all admitted that the operation was a major one. On the other hand, a physician selected by the claimant and the physician to whom the claimant was first referred by the employer were of the opinion that an operation would not be beneficial and that more serious injuries might result. The claimant, the court said, was not required to follow the advice of one physician in preference to another, especially when the physician whose advice it is insisted should be followed is a physician selected by the party opposing the claimant's claim. A patient must be accorded a certain discretion in the selection of the physician whose advice he desires to follow, and the courts will not make that selection for him unless he refuses to make it for himself or unless it is shown that the physician selected is not skilled in his profession. Courts will not force a claimant to risk his life in order that the company legally bound to compensate him may be given an opportunity to reduce its liability. A claimant has the right to remain in a helpless condition, so far as earning a livelihood is concerned, in preference to taking a chance on additional disability which might result in an endeavor to cure his present condition.

In the opinion of the court the evidence was sufficient to support the findings and award of the industrial commission and therefore the judgment of the lower court in favor of the claimant was affirmed.—*Kentucky-Jellico Coal Co. v. Lee, 158 S. W. (2d) 385 (Ky., 1942).*

Society Proceedings

COMING MEETINGS

American Society of Anesthetists, New York, Dec. 10. Dr. Paul M. Wood, 745 Fifth Ave., New York, Secretary.

Annual Conference of Secretaries and Editors of Constituent State Medical Associations, Chicago, Nov. 20-21. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 11-13. Dr. E. Martinez Rivera, P. O. Box 3866, Santurce, Secretary.

Radiological Society of North America, Chicago, Nov. 30-Dec. 4. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse, N. Y., Secretary.

Society of American Bacteriologists, Columbus, Ohio, Dec. 28-30. Dr. W. B. Sarles, Agricultural Hall, University of Wisconsin, Madison, Wis., Secretary.

Southern Medical Association, Richmond, Va., November 10-12. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, Savannah, Ga., Dec. 8-10. Dr. Alton Ochsner, 1430 Tulane Ave., New Orleans, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Psychiatry, New York

99:1-158 (July) 1942. **Partial Index**

Presidential Address: Psychiatry and Psychiatrists in the Democratic Way of Life. J. K. Hall, Richmond, Va.—p. 1.
Problem of Social Control of the Congenital Defective: Education, Sterilization, Euthanasia. F. Kennedy, New York.—p. 13.
Exoneration of the Feebleminded. L. Kanner, Baltimore.—p. 17.
Survey of Neuropsychiatric Work at the Boston Induction Station. W. Bloomberg and R. W. Hyde, Boston.—p. 23.
Neuropsychiatric Evaluation of the Potential Soldier. H. H. Goldstein, Fort McPherson, Ga.—p. 29.
Psychiatric Problems in Military Service During Training Period. A. O. Hecker, M. R. Plesset and P. C. Grana, Indiantown Gap, Pa.—p. 33.
Studies Concerning Action of Dilantin. F. Frisch and A. W. Pigott, Skillman, N. J.—p. 55.
Level of Adrenocortical Substance in Blood During Hypoglycemic Treatments for Schizophrenia. Esther Bogen Tietz and S. M. Birnbaum, Cincinnati.—p. 75.
Opiate Withdrawal Treated with Induced Hypoglycemic Reactions. S. J. Tillim, Amityville, N. Y.—p. 84.
Toxic Delirious Reactions of Old Age. G. W. Robinson Jr., Kansas City, Mo.—p. 110.
Use of Amphetamine Sulfate (Benzedrine) in Child Psychiatry. Lauretta Bender and Frances Cottington, New York.—p. 116.
Psychologic Aspects of Hobbies: Contribution to Civilian Morale. W. C. Menninger, Topeka, Kan.—p. 122.

American Journal of Tropical Medicine, Baltimore

22:313-470 (July) 1942

Incubation Period of Trichinosis. O. R. McCoy, Rochester, N. Y.—p. 313.
Amebic and Bacillary Colitis in the New Orleans Area: Preliminary Report. J. S. D'Antoni, New Orleans.—p. 319.
Use of Aqueous Smears in Examination of Feces for Intestinal Protozoa. E. G. Hakansson, Washington, D. C.—p. 325.
Study of Pathologic Lesions in Plasmodium Knowlesi Infection in Macacus Rhesus Monkeys. R. H. Rigdon and W. K. S. Thomas, Memphis, Tenn.—p. 329.
*Intestinal Parasite Infections Among Inpatients of the Indiana University Medical Center Hospitals. W. H. Headlee, Lafayette, Ind.—p. 341.
Intestinal Parasitism Among Students of Berea College, Kentucky. W. H. Headlee and R. M. Cable, Lafayette, Ind.—p. 351.
Observations on Mechanism of Parasite Cycle in Falciparum Malaria. S. F. Kitchen, Tallahassee, Fla., and P. Putnam, New York.—p. 361.
Malaria Survey of El Salvador, Central America. V. A. Sútter and H. Súniga, Republic of El Salvador, Central America.—p. 387.
Mosquitoes of El Salvador. H. W. Kumm and H. Zúniga, Republic of El Salvador, Central America.—p. 399.
Swarming, Mating and Ovipositing Behavior of Anopheles Culicifacies. P. F. Russell and T. R. Rao, Nilgiri, Madras Presidency, India.—p. 417.
Notes on Improvements Made to Equipment for Spray Killing of Adult Mosquitoes. F. W. Knipe and N. R. Sitapathy, Nilgiri, Madras Presidency, India.—p. 429.
Observations on Automatic Distribution of Paris Green. F. W. Knipe and P. F. Russell, Nilgiri, Madras Presidency, India.—p. 447.
Cutaneous Myiasis Due to Larvae of Cordylobia Anthropophaga: Case. C. D. Smith and R. C. Rosenberger, Philadelphia.—p. 459.

Intestinal Parasite Infections.—The intestinal parasite incidence was determined by the microscopic examination of stool specimens and/or scrapings from the perianal region of 319 charity patients of three hospital units of the Indiana University Medical Center. The incidence as reported by Headlee was 18, or 7 per cent of 285 persons for one or more species of worms whose stools were examined; 13, or 5 per cent, were infected with the pinworm. The perianal scrapings of 319 individuals revealed that 27, or 8.5 per cent, were infected with helminths of one or more species; 22 were infected with pinworms. Comparison of the data with the results of other surveys in Indiana and states to the south shows that the incidence of Endameba histolytica, 0.8 per cent, is considerably lower than the estimated 5 to 10 per cent for the general population of the United States. The incidence of infection with Endameba coli, Endolimax nana, Giardia lamblia, Iodameba buetschli, Chilomastix mesnili and Trichomonas hominis is slightly higher for Indiana than for some of the states to the south. The helminth infections appear to be light and scattered throughout the area, if Enterobius is not considered. The one hookworm infection found was the first native case encountered by the author in Indiana. The incidence of Hymenolepis nana was 0.4 per cent, the same as that reported for Mississippi in 1934 and 1936. The incidence of 0.8 per cent for Ascaris and Trichuris does not compare with the higher incidence found in Kentucky and Tennessee. In no case was the stated primary cause of hospitalization a gastrointestinal disturbance. The 2 persons infected with Endameba histolytica had diarrheic or mushy diarrheic stools, but this was not their major complaint, and the possibility of an amebic infection was not mentioned in the diagnosis. The 319 patients, aged from 6 weeks to 78 years, examined were from seventy-five of the ninety-two counties of Indiana.

American Review of Tuberculosis, New York

46:227-364 (Sept.) 1942

Tuberculosis in College Students: Second Five Year Review. C. E. Lyght, Northfield, Minn.—p. 227.
*Treatment of Tuberculosis with Low Carbohydrate Diet. B. P. Sandler and R. Berke, New York.—p. 238.
Results of Phrenic Nerve Operations: Critical Analysis of Fifty-Seven Cases from the Surgical Division of the New York District Tuberculosis Hospitals. P. L. Owens, Orlando, Fla.—p. 262.
*Inhalation of Nebulized Promin in Experimental Tuberculosis: Sodium P,P'-Diaminodiphenylsulfone-N,N'-Didextrose Sulfonate. A. L. Barach, N. Molomut and M. Soroka, New York.—p. 268.
*Chemotherapy of Tuberculosis: Promin by Intravenous Drip Method. G. Zucker, M. Pinner and H. T. Hyman, New York.—p. 277.
B Complex Deficiency in Tuberculosis: Gastrointestinal Manifestations. W. H. Glass, Hartford, Conn.—p. 285.
Tubercles and Foreign Body Granulomas: Experiments in Mice and Guinea Pigs. W. Pagel, London, England.—p. 295.
Experimental Tuberculosis in Hyperglycemic Albino Rats. M. M. Steinbach and C. J. Duca, New York.—p. 304.
Congenital Tuberculin Hypersensitiveness and Specific Tuberculoallergic Immunity. H. J. Corper and C. Clark, Denver.—p. 309.
Initial Tissue Response to Tubercle Bacilli. C. E. Woodruff, Ruby G. Kelly and Mary A. Leaming, Northville, Mich.—p. 319.
Age Characteristics of Tubercles. H. C. Sweany, Chicago.—p. 329.

Low Carbohydrate Diet Therapy of Tuberculosis.—Sandler and Berke selected 10 patients for a trial of a low carbohydrate diet in pulmonary tuberculosis. The patients were not fit for any form of collapse therapy and their prognosis was poor. The diet ranged from 2,309 to 2,920 calories, and consisted of 114 to 124 Gm. of carbohydrate, 101 to 129 Gm. of protein and 161 to 212 Gm. of fat. Excepting six soda crackers allowed daily, the carbohydrate content of the diet was ingested in the form of 5 and 10 per cent vegetables and fruits and dairy products. Bread, cereals, potatoes, sugar, corn, rice, tapioca, split peas, noodles, macaroni, spaghetti, cake, candy, ice cream, pancakes and the like were completely avoided. Soy bean flour muffins were given from time to time and enjoyed. Patients were encouraged to eat nuts between meals if they were hungry, but high carbohydrate nuts, such as peanuts and cashews, were not allowed. After going on the diet they usually complained of being hungry after meals. After a week or two this hunger disappeared and the desire for carbohydrate rich foods usually subsided. All the patients responded favorably, and improvement was progressive and permanent as long as they continued on the diet. Prompt exacerbation of symptoms was reported by 1 patient when he left the hospital and, because he was unable to purchase the more expensive proteins and fats, went back to a high carbohydrate diet. Digestive symptoms returned promptly in another patient who ate small quantities of carbohydrate rich foods when he went to the Country Sanatorium. Seven of the patients gained from 5 to 25 pounds (2.2 to 11.2 Kg.) after an initial loss of 4 pounds (1.8 Kg.) during the first three weeks in 1, 1 patient lost 5 pounds without regaining any; in 1 there was no change and 1 who lost 10 pounds (4.5 Kg.) subsequently regained this weight. Common digestive complaints, such as fulness after meals, belching, heartburn, flatulence, epigastric heaviness and abdominal cramps, disappeared after a few days. The fact that similar symptoms in patients without tuberculosis or other infections respond to the change in diet is further evidence that they are not due directly to the infection. Relief from precordial symptoms (pain, heavi-

ness over the chest, palpitation and dyspnea) at rest and on exertion also occurred. Cough, wheezing and difficulty in raising sputum were either completely relieved or greatly ameliorated. There was a striking improvement in the mental state of the patients; they appeared more buoyant and hopeful. Five patients have returned to their homes, it was possible to prepare 2 for surgery and 3 are still in the hospital and improving steadily. The beneficial effects on the diet are attributed to increased dextrose-oxygen consumption brought about by elevating the blood sugar to normal levels in patients with hypoglycemia, by restricting carbohydrate rich foods in patients with hyperglycemia and by making available the more highly reactive γ-dextrose in patients with neither hypoglycemia nor hyperglycemia. A low carbohydrate, high protein diet probably brings about a normal liver glycogen storage which is necessary for adequate delivery of endogenous dextrose to tissues so that cellular oxidations may be maintained at an optimal level.

Treatment of Experimental Tuberculosis.—Barach and his associates repeated the experiments of Feldman, Hinshaw and Moses, who reported that the sodium salt of p,p′-diaminodiphenylsulfone-N,N′-didextrose sulfonate had an inhibitory effect on the development of experimental tuberculous infection in guinea pigs. Slight variations in the procedure showed that the oral route did not offer as great a concentration of the drug in the lungs and a lower concentration in the blood as did local application of the nebulized spray of the compound. The inhalation of the nebulized spray had a deterrent influence on the development of generalized tuberculosis in 22 of 28 guinea pigs as compared to 10 infected, untreated control animals. Despite a lower concentration of the compound in the blood of animals who had inhaled the nebulized spray, the degree of pulmonary and generalized tuberculosis was less than in the orally fed group. Of 16 animals treated by inhalation, 13 survived for the eighty-four days of the experiment, whereas the 14 animals given the compound by mouth and the 17 untreated animals did not survive beyond the seventy-fifth day. Inhalation of the nebulized spray has been carried out on 3 patients with advanced pulmonary tuberculosis.

The Chemotherapy of Tuberculosis.—Zucker and his co-workers administered the sodium salt of p,p′-diaminodiphenylsulfone-N,N′-didextrose sulfonate to 12 tuberculous patients by the continuous intravenous drip method. The toxic effects, fever up to 101 F. and slight anorexia, cyanosis, weakness, headache and drop in hemoglobin, were usually slight and transient. Of 2 patients who received 25 Gm. per kilogram of body weight of the compound daily blood levels were maintained between 10 and 15.4 mg. per hundred cubic centimeters and in them the common toxic symptoms of sulfanilamide ensued but, when the daily dose was reduced to 15 Gm., disappeared promptly. The patients were observed for four to seven months after one to two months of treatment with the compound was begun. Three patients died respectively eight, five and two weeks after receiving it. All the patients had been on bed rest for one month to two years before the therapy was begun. Objective evidence indicated that on bed rest there was progression in 8, no change in 1 and slight improvement in 3. Bed rest was continued in each while the compound was administered. It did not alter the expected course of the disease in any of the patients, with the possible exception of 1 with an extensive ulcerocaseous tuberculosis of the right main bronchus and the lower part of the trachea. The ulcerations became less extensive and more fibrotic, and bronchoscopists were of the opinion that the rate of healing was faster than could be anticipated. The improvement of 2 patients was no better than is often found for such lesions on bed rest alone. The progression in 4 patients was particularly significant, since their lesions were early and nondestructive. In 1 not only did the new pulmonary infiltrations progress and excavate during and after treatment, but symptoms and roentgen signs of intestinal tuberculosis appeared. It is the authors' contention that the drug as given is ineffective against clinical tuberculosis. Their clinical observations are at variance with the successful results in tuberculous guinea pigs. The discrepancy should serve to emphasize again the difficulty of translating laboratory into clinical experience. The action of drugs may not be the same in the guinea pig and in man. The clinical results are disappointing, but they make it necessary more than ever to extend the search for a drug that will cure tuberculosis.

Archives of Neurology and Psychiatry, Chicago

48:355-508 (Sept.) 1942

Experiences with Intramedullary Tractotomy: III. Studies in Sensation. L. M. Weinberger, Chicago, and F. C. Grant, Philadelphia.—p. 355.
Effect of Certain Choline Derivatives on Electrical Activity of Cortex. C. Brenner and H. H. Merritt, with technical assistance of Marguerite G. Maguire, Boston.—p. 382.
*Intracranial and Extracranial Vascular Accidents in Migraine. H. S. Dunning, New York.—p. 396.
Water Metabolism in Relation to Convulsions: II. Specific Gravity of Blood and Blood Serum. T. T. Stone, A. J. Arieff and J. A. Luhan, Chicago.—p. 407.
Neuropathologic Changes in Arteriosclerotic Psychoses and Their Psychiatric Significance. D. Rothschild, Foxborough, Mass.—p. 417.
Intraneural Conditioning: Cerebellar Conditoned Reflexes. W. J. Brogden and W. H. Gantt, Baltimore.—p. 437.
Morquio's Disease Associated with Mental Defect. M. J. Farrell, J. D. Maloney and P. I. Yakovlev, Waverley, Mass.—p. 456.
*Surgical Removal of Brain Abscess Due to Bacillus Typhosus Following Typhoid Fever. G. L. Odom and A. R. Elvidge, Montreal, Canada.—p. 465.
Apraxia: Report of Case with Autopsy. H. A. Teitelbaum, O. R. Langworthy and A. B. King, Baltimore.—p. 469.
Complete Heart Block Occurring During Insulin Shock Therapy: Report of Case. A. R. Berger and W. Goldfarb, New York.—p. 476.

Vascular Accidents in Migraine.—A case of migraine is reported by Dunning in which a cerebral hemorrhage occurred during an attack. The relevant literature revealed 6 similar cases. Five of the patients were women; all were 18 to 37 years of age at the time of the first accident. There were ten vascular hemorrhages and one retinal infarction; only one caused death. Of the ten hemorrhages, seven involved the eye and were directly observed. The other three were cerebral; two were detected by the presence of blood in the spinal fluid and one was observed directly at necropsy. Three cerebral hemorrhages occurred during menstruation, five (three ocular and two cerebral) occurred at the time of headache and were precipitated by activity producing sudden increase in pressure within the blood vessels of the head. Two other ocular hemorrhages were discovered soon after such activity during the headache. The author concludes that, unless such vascular accidents can be attributed to latent structural lesions of the cranial blood vessels, migraine should be regarded as a disordered function capable of causing irreversible tissue change.

Brain Abscess.—Odom and Elvidge present the clinical history of a patient who four months after an attack of typhoid was operated on for an expanding intracranial lesion which proved to be a cerebral abscess, from which a pure culture of Eberthella typhosa was obtained. On discharge on the twentieth postoperative day neurologic examination revealed nothing abnormal. This is probably the first case of cerebral abscess proved to be due to E. typhosa following typhoid which was discovered before death and the first in which neurosurgical treatment was effective.

Archives of Surgery, Chicago

45:335-506 (Sept.) 1942

*Intracranial Arterial Aneurysms in Carotid Canal: Diagnosis and Treatment. W. E. Dandy, Baltimore.—p. 335.
Surgical Significance of Epiploic Appendages. H. M. Giffin, E. P. McManamy and J. M. Waugh, Rochester, Minn.—p. 351.
*Acute Surgical Parotiditis. W. T. Coughlin, St. Louis, and E. R. Gish, Eldorado, Ill.—p. 361.
Duodenal Bulb Acidity Under Fasting Conditions in Patients with Duodenal Ulcer. J. E. Berk, M. E. Rehfuss and J. E. Thomas, Philadelphia.—p. 406.
Capillary Permeability and Inflammation in Skin of Rabbits: Experimental Studies Following Sectioning of Spinal Cord. H. Wilson and R. H. Rigdon, Memphis, Tenn.—p. 416.
Perinephric Abscess. F. A. Simeone, Boston.—p. 424.
Progress in Orthopedic Surgery for 1941. Review Prepared by Editorial Board of the American Academy of Orthopaedic Surgeons.—p. 443.

Intracranial Arterial Aneurysms in Carotid Canal.—In a review of 108 arterial aneurysms of the brain that came to operation or necropsy, Dandy states that 9 were in the carotid canal; in 1 the condition was bilateral. He has collected 27 additional cases from the literature, in 3 of which the condition

was bilateral. According to signs and symptoms, aneurysms of the carotid canal are of three types: (1) those giving palsies of the extraocular muscles, (2) those giving trigeminal neuralgia and corresponding sensory loss and (3) a combination of the two types. The most important manifestations of an aneurysm in this region are palsy or paralysis of the third nerve and periodic severe pain in the affected eye or frontal region. These disturbances are equally present with intracranial aneurysms of the internal carotid or even of the posterior communicating artery. When to this pain and paralysis is added involvement of the first and second branches of the trigeminal nerve (eventually of all three branches) the diagnosis of an aneurysm in the carotid canal is almost absolute. Usually paralysis of the fourth and sixth nerves coexists. Loss of vision is an important and common subjective and objective disturbance. At times papilledema results from intracranial pressure as the aneurysm grows upward into the cranial chamber. The fact that aneurysms are due to defective arterial walls predisposes them to rupture. Exophthalmos occurs only with large aneurysms which have eroded the walls of the sphenoid fissure. The ages of patients at operation, death or disclosure of the aneurysm are fairly evenly distributed in all decades. The duration of symptoms varies considerably, from a few weeks or months to twenty-five years. The fact that the aneurysms in 13 were actually disclosed at operation testifies to the recent great progress in neurosurgery. Angiography is inadvisable, as it is not without risk. In 1 case it did not disclose the lesion subsequently found at operation. Patients are better off without it. Of 7 patients operated on 1 died, this patient being operated on for a carotid-cavernous arteriovenous aneurysm, and at necropsy the cause of the arteriovenous aneurysm was found to be rupture of two small arterial aneurysms in the carotid canal. Death was due to rupture of an oversize arteriosclerotic artery during the application of a silver clip that was too small. This was the only accident in more than 20 closures of the carotid intracranially. The other 6 patients were cured, the longest for three and a half years.

Acute Surgical Parotiditis.—Among 95,355 admissions to St. Mary's Hospital and to the Firmin Desloge Hospital parotiditis had developed, according to Coughlin and Gish, in 44. The cases occurred among the medical and surgical services. Most of the patients were females. In 17 it followed abdominal operations, eight of which were for gynecologic conditions (1 in every 400 gynecologic operations). Parotiditis occurred most often in those with dry and at the same time poorly cleansed mouths (tongue and teeth). The most frequent bacterial cause was Staphylococcus aureus and albus. Early chemotherapy is indicated; sulfathiazole is probably best. The mortality is lower among those in whom there are early surgical indications for incision and uncovering of the gland. Simple incision is only for a frank abscess. Radiation appears to be a valuable form of treatment. The safe operative treatment consists in uncovering the whole gland and making multiple openings in its substance with a blunt instrument.

Arkansas Medical Society Journal, Fort Smith

39:85-106 (Sept.) 1942

Problem of Cerebral Palsy and Its Relation to Rehabilitation and Public Health. W. M. Phelps, Baltimore.—p. 85.
Medical and Hospital, Obstetric and Pediatric Care for Wives and Infants of Men in Military Service. Committee on Maternal and Child Welfare.—p. 89.
Rheumatic Fever. A. A. Blair, Fort Smith.—p. 93.

Bulletin of Johns Hopkins Hospital, Baltimore

71:47-122 (Aug.) 1942

Use of T-1824 in Plasma Volume Determinations. P. B. Price and W. P. Longmire, Baltimore.—p. 51.
*Influence of Dietary Fat on Excretion of Urobilin. H. W. Josephs, L. E. Holt Jr., H. C. Tidwell and Charlotte Kajdi, Baltimore.—p. 84.
Dehydrating Fixative for General Use, Including Description of Technics and Stains for Paraffin and Celloidin Sections. W. B. Vandegrift, Baltimore.—p. 96.

Influence of Dietary Fat on Excretion of Urobilin.—The finding of an increased urobilin output in the stools of normal infants on high fat diets raised questions as to the interpretation of this phenomenon. Of the various possible explanations Josephs and his collaborators believe that the most satisfactory is that absorption of increased amounts of soap on a high fat diet or a diet to which free fatty acid or soap have been added leads to increased hemolysis. The effect on urobilin is independent of the type of fat fed. A high fat diet causes a sudden but temporary increase in the output of iron in the feces.

Bulletin New York Academy of Medicine, New York

18:559-622 (Sept.) 1942

Physiologic Studies Pertaining to Deep Sea Diving and Aviation, Especially in Relation to Fat Content and Composition of Body. A. R. Behnke Jr., Washington, D. C.—p. 561.
Surgical Treatment of Peripheral Embolism and Aneurysm. G. H. Pratt, New York.—p. 586.
Testicular Biopsy in Diagnosis and Treatment of Sterility in Male. R. S. Hotchkiss, New York.—p. 600.
Epidemic Constitution in Historical Perspective. I. Galdston, New York.—p. 606.

California and Western Medicine, San Francisco

57:115-168 (Aug.) 1942

*March Fracture: Report of Fifteen Cases. A. B. Sirbu and A. M. Palmer, Fort Ord.—p. 123.
Duty of the Physician Toward the Child in Wartime. L. B. Dickey, San Francisco.—p. 127.
Chest X-Ray Examinations of Large Groups. W. Bailey, Los Angeles.—p. 128.
War Soft Tissue Wounds and Their Complications. J. H. Woolsey, Woodland.—p. 130.
*Some Considerations Regarding Etiology of Impetigo Contagiosa. H. S. Campbell, Los Angeles.—p. 136.
Fractures of Facial Bones: Their Treatment. R. S. Tillotson, Sacramento.—p. 137.

March Fracture.—Sirbu and Palmer suggest that march fracture is a stress fracture secondary to a developmental anomaly. It occurs in young soldiers unused to long marches, but only in those whose feet are inherently weak or flat and mechanically unsuited to withstand the exertion. The authors treated 15 such cases in eighteen months. They constituted 25 per cent of all fractures of the metatarsals seen during the same period. The previous occupation of the group was either sedentary or of a physical type requiring no exhaustive hiking or rhythmic marching. Regarding some contributing injury, 11 volunteered no specific incident of trauma and 4 claimed comparatively minor accidents, stubbing or bumping of the foot, which were insufficient to warrant immediate medical attention. This tends to substantiate the claim that march fracture is caused by rhythmic movements, multiple mechanical insults or microtraumatism. Furthermore, continued prolonged weight bearing could cause dissemination of the fracture hematoma and excessive callus formation. The metatarsal involved was the second in 7 and the third in 8. This predilection for the second and third metatarsals also tends to substantiate the predisposing cause for the condition. Roentgen studies in all revealed a relatively short first metatarsal compared to the second. The sesamoids, which bear the initial brunt of the takeoff, were proximally located and the shortening effect was further increased. The weight, which should be borne by the heavier and stronger first metatarsal, was shifted to the two adjacent metatarsals, which were long and slender and ill equipped to bear the person's weight and a heavy pack. The base of the second and third metatarsals was relatively fixed, so that, as the full load was placed on its head, considerable stress was transmitted to the shaft, which cracked at its weakest point. From a developmental standpoint, in those individuals in whom the first metatarsal fails to reach at least a comparatively equal length to the second, a potentially weak foot results, the so-called atavistic foot. March foot may be considered as an end result of subacute flatfoot occurring in a congenitally weakened foot. This developmental anomaly was noticed not only in the 15 men but also in all similar reports in the literature with satisfactory roentgen studies. A metatarsal pad, strapping to relieve the weight from the head of the afflicted bone and an anterior heel or metatarsal bar to the shoe were usually sufficient. Local heat, light massage and exercises were beneficial. The average length of disability was twenty-one days. There were no after effects or recurrences.

Etiology of Impetigo Contagiosa.—The conviction that in impetigo contagiosa some agent other than staphylococci or streptococci was operative led Campbell to suppose that an infectious rather than a contagious process was the etiologic agent.

If a filtrable virus is premised as being the etiologic agent, many phenomena are possible of acceptance. The minor clinical variations could be explained as being due to the symbiotic action of a secondary organism dominant in the lesion. Assuming the theory to be correct, any primary pure culture of staphylococci or streptococci would be so intimately associated with the virus that it would be present in sufficient strength to reproduce the disease. Pinpoint subcultures would not carry the virus over in reproductive strength. Lesions have been produced using primary cultures of staphylococci but not with subcultures. The fact that on several occasions the author was unable to reproduce the disease with material taken direct from freshly denuded previously untreated lesions persuaded him that regional as well as soil factors play no small part in the reproduction of the disease and that other factors obtain. Certainly it is not as contagious as one has been led to believe; and although the frequent involvement of the face suggests a regional sensitivity, daily practice suggests a covered area to be the region of choice for inoculation. The author's experiments on himself with Berkefeld filtrates of washings or swabbings taken from active untreated lesions of the disease produced several scattered itching points which in six days were pronounced as impetigo contagiosa by Saul Robinson.

Cancer Research, Baltimore

2:597-668 (Sept.) 1942

Cancerous Neoplasm of Plants: Autonomous Bacteria-Free Crown-Gall Tissue. P. R. White and A. C. Braun, Princeton, N. J.—p. 597.
Human Neoplasms in Tissue Culture. D. R. Coman, Philadelphia. —p. 618.
Agent of Fowl Leukosis in Tissue Cultures. L. Doljanski and M. Pikovski, Jerusalem, Palestine.—p. 626.
Occurrence of Benign and Malignant Mammary Lesions in Rats Treated with Crystalline Estrogen. M. J. Eisen, New York.—p. 632.
Tumor Inhibitor Studies: I. Effect of Pure Chemical Compounds on Tumor Takes. B. E. Kline, W. L. Wasley and H. P. Rusch, Madison, Wis.—p. 645.
Heterologous Transplantation of Human Fibrosarcoma. H. S. N. Greene, New Haven, Conn.—p. 649.
Mitochondria in Lymphocytes of Normal and Leukemic Mice. J. S. Potter and E. N. Ward, Cold Spring Harbor, N. Y.—p. 655.
Mechanism of Tumor Production by Chemical Agents. F. Bergmann, Rehovoth, Palestine.—p. 660.

Connecticut State Medical Journal, Hartford

6:691-764 (Sept.) 1942

Psychiatry as Basic Medical Science. J. C. Whitehorn, Baltimore. —p. 693.
Speech and Voice Disorders: Few of the More Important Syndromes. J. S. Greene, New York.—p. 700.
Burns. D. B. Wells, Hartford.—p. 704.
Wounds of Thorax. G. E. Lindskog, New Haven.—p. 709.
Chemotherapy in War Wounds and Compound Fractures. P. P. Swett, Bloomfield.—p. 713.
Eye Injuries. E. M. Blake, New Haven.—p. 716.
Abdominal Injuries. L. C. Foster, New Haven.—p. 724.

Endocrinology, Springfield, Ill.

31:287-392 (Sept.) 1942. **Partial Index**

Effect of Adrenal Factors on Plasma Proteins. F. A. Hartman, Lena A. Lewis, J. S. Thatcher and H. R. Street, Columbus, Ohio.—p. 287.
Effect of Testosterone Propionate on Hypophysis of Normal Young Adult Male Rat. P. Wainman, J. D. Reese and A. A. Koneff, Berkeley, Calif.—p. 303.
Influence of Normal Male Urine Gonadotropin on Spermatogenesis in Hypophysectomized Mature and Immature Rats. J. H. Leathem and E. J. Mills Jr., New York.—p. 318.
Physiology of Egg Extrusion in Female Xenopus Frog Test for Pregnancy. A. I. Weisman, A. F. Snyder and C. W. Coates, New York.—p. 323.
Influence of Antagonism Phenomenon on Mammary Gland Development. F. Bischoff and Louise P. Ingraham, Santa Barbara, Calif. —p. 326.
Endocrine Factors Influencing Tumor Development: Administration of Gonadotropins at Early Cancer Age to Marsh Buffalo Mice. F. Bischoff, J. J. Rupp and Georgena J. Clarke, Santa Barbara, Calif. —p. 329.
Calorigenic Action of Diethylstilbestrol in Rat. R. G. Janes, Detroit. —p. 354.
Total Iodine and Thyroxine of Thyroid After Hypophysectomy. E. J. Baumann, Nannette Metzger and D. Marine, New York.—p. 359.
Study of Estrus Producing Activity of Diethylstilbestrol in Subthreshold to Maximal Dosages. C. S. Matthews, E. L. Schwabe and F. E. Emery, Buffalo.—p. 371.
Deciduoma Formation in Rats During Testosterone Treatment. C. F. Fluhmann and G. L. Laqueur, San Francisco.—p. 375.
Relationship in Low Blood Calcium to Parathyroid Secretion. H. M. Patt and A. B. Luckhardt, Chicago.—p. 384.

Journal of Investigative Dermatology, Baltimore

5:149-206 (Aug.) 1942

Purpura Annularis Telangiectodes (Majocchi) and Progressive Pigmentary Dermatosis (Schamberg): Clinical and Histopathologic Features; Differential Diagnosis. F. Wise, New York.—p. 153.
Experimentally Induced Disappearance and Reappearance of Lesions of Hydrocystoma. A. Dostrovsky and F. Sagher, Jerusalem, Palestine.—p. 167.
*Pulmonary Fat Embolism Following Infusions via Bone Marrow. U. J. Wile and I. L. Schamberg, Ann Arbor, Mich.—p. 173.
Tobacco Skin Reactions in Peripheral Vascular Diseases and Coronary Artery Disease. M. A. Green, Pittsburgh.—p. 179.
Studies in Abnormal Human Sensitivity to Light: I. Prurigo Aestivalis, Eczema Solare and Urticaria Photogenica; Report of Seventeen Cases and Review of Literature. S. Epstein, Marshfield, Wis. —p. 187.
Dermatopathic Lymphadenitis: Focal Granulomatous Lymphadenitis Associated with Chronic Generalized Skin Disorders. E. Hurwitt, New York.—p. 197.

Pulmonary Fat Embolism.—Wile and Schamberg attempted to determine the feasibility of using the bone marrow route for massive arsenotherapy of syphilis. Rabbits were given by bone marrow infusion drip daily for five days 4 mg. of mapharsen per kilogram of body weight. Massive intravenous arsenotherapy was administered to 2 control rabbits. Pulmonary fat emboli were demonstrated in 5 of the 7 rabbits treated via the bone marrow. No fat emboli were seen in the 2 animals treated by vein. In view of this finding the authors do not believe that the procedure can at present be considered free from hazard in human beings.

Journal of Urology, Baltimore

48:131-230 (Aug.) 1942

Unusual Kidney Tumor: Malignant Papillary Cystadenoma and Papillary Carcinoma with Clear Cells. G. S. Foulds, Toronto, Canada. —p. 131.
*Incidence of Renal Hypertension and of Cure by Nephrectomy. R. K. Ratliff and K. B. Conger, Ann Arbor, Mich.—p. 136.
Aneurysm of Renal Artery: Case Report. C. G. Child 3d, New York.—p. 142.
*Primary Lymphosarcoma of Bladder. H. A. R. Kreutzmann, San Francisco.—p. 147.
Embryology of Vesical Neck Muscle. A. Trabucco, Buenos Aires, Argentina.—p. 153.
Renaissance of Prostatectomy, with Particular Reference to Minimal Hospitalization Without Preliminary Drainage. E. Davis, Omaha. —p. 163.
Study of Excretion of Gonadotropic Hormone in Benign Prostatic Hypertrophy. J. Schwarz, New York.—p. 170.
*Clinical Aspects of Carcinoma of Prostate: Review of Thirty-Eight Operative Cases. F. C. Hamm, Brooklyn.—p. 174.
Rhabdomyosarcoma of Testicle. C. L. Prince, Charlottesville, Va. —p. 187.
Upper Urinary Tract Lithiasis: Frequent Complication of Urethral Stricture. R. L. Dourmashkin and A. A. Solomon, New York. —p. 196.
New Series of Citrate Buffers for Use in Urinary Tract Lithiasis. I. G. Hodge, B. L. Hayllar and R. A. Way, Philadelphia.—p. 204.
Anuria After Operations on Colon and Rectum. C. W. Mayo and C. P. Schlicke, Rochester, Minn.—p. 207.
Studies of Urinary Retention During Tetanus. P. F. Eastman and R. M. Nesbit, Ann Arbor, Mich.—p. 219
Breathing During Pentothal Anesthesia. C. A. Moyer and H. K. Beecher, Boston.—p. 222.
Distribution of Spermatozoa and of Certain Chemical Constituents in Human Ejaculate. J. MacLeod and R. S. Hotchkiss, New York. —p. 225.

Renal Hypertension and Nephrectomy.—During 1940 and 1941, 528 patients with hypertension had pyelograms made by Ratliff and Conger to determine whether the kidneys were affected or not. Of these 340 had urinary symptoms (nocturia) and 188 did not. In the symptomatic group there were many patients who had gross hematuria and gross infection. Thirty-two of the 340 patients had renal disease; 15 were considered to have congenital abnormalities which had nothing to do with the increased blood pressure; they represented the type of case in which operation would not relieve the hypertension. The remaining 17 had renal conditions compatible with hypertension; 12 had chronic pyelonephritis and 5 renal calculi. Only 2 of the 12 with chronic pyelonephritis might have been improved by nephrectomy, as in 7 the involvement was bilateral and in the 3 with so-called unilateral involvement the diagnosis was questionable. There remain 7 of 340 who might possibly be treated and benefited by operation. The pyelograms of 285 were negative and of 23 inconclusive. Of those with urinary symptoms 110 had negative, 30 inconclusive and 48 positive pyelograms. During 1935 and 1936, 211 patients had a nephrectomy performed; 73 had a preoperative elevation of blood pressure higher

than a systolic of 140 and a diastolic of 90. Only 32 of the 73 were adequately followed for purposes of study and in none of them did the pressure exceed 200/110; that is, they may be classified as having relatively benign hypertension. The diseases of the 32 were pyonephrosis, tuberculosis, calculus disease, neoplasm and pyelonephritis. The pressure of 11 of the 32 returned to normal or was definitely improved, that of 8 showed no postoperative change, the blood pressure readings of 8 were progressively higher and 5 died during the period of study. One of the deaths was directly attributed to hypertension. Six of the 9 nephrectomized hypertensive individuals cared for during 1940 and 1941 and adequately enough followed for two to ten months had a blood pressure above 200 systolic and 100 diastolic; that is, they had premalignant or malignant pressures. In 3 there was a postoperative regression of blood pressure to normal, that of 3 was improved and in 3 there was no definite change. As stabilization means improvement, the 9 may be considered 100 per cent improved, with a possible cure in 33⅓ per cent. Until a more selective test has been adopted, any patient with hypertension in whom unilateral renal disease can be demonstrated should be subjected to a nephrectomy, not only as a cure for the local lesion, but also with the hope that the hypertension will be relieved.

Primary Lymphosarcoma of Bladder.—Kreutzmann states that a careful checking of the literature, not only for sarcoma, but also for the various types of this growth involving the bladder, reveals many duplications, so that only 2 cases of authentic lymphosarcoma have been reported up to 1910 and only 2 additional cases since then. He presents the fifth authentic case of primary lymphosarcoma of the bladder. The tumor originates from the lymphoid tissue in a chronically irritated bladder. It is a localized condition with no evidence of generalized glandular enlargement. Early diagnosis and radical excision will give the most favorable results.

Carcinoma of Prostate.—Of 316 patients coming to operation for various types of urinary obstruction, Hamm found carcinoma in 41 and operated on 38. Their average age was 66.4 years; the oldest was 79 and the youngest 45. In 31 the diagnosis of cancer was confirmed by microscopic study, in 1 carcinoma was considered to be possible, in 4 microscopic study did not support the diagnosis but it was established as carcinoma clinically, and from 2 tissue was not obtained. Eighteen had roentgen evidence of metastasis at the time of operation. In 5 no roentgenograms were taken, but in 2 of these there was definite clinical evidence of metastasis to the bones. The key to early diagnosis lies in semiannual rectal examination of all male patients 50 or more years of age. Needle biopsy may be of value in diagnosing the early neoplasm, although a negative result is not conclusive. A more dependable method of diagnosis in questionable cases is to expose the gland through a perineal approach and to remove the suggestive nodule for examination by the frozen section method. Curative treatment consists in radical perineal resection. Palliative therapy (surgery and/or irradiation) is indicated when the neoplasm has so developed that radical surgery is impossible. It prolongs life and relieves discomfort and urinary retention. The good effects of castration in cases of advanced prostatic carcinoma have recently been reported by Huggins. The author performed orchiectomy on 5 of his patients in whom the encouraging results are too recent for evaluation. Of the 38 patients there has been no postoperative follow-up on 6, 9 have been lost track of after three months to three years, 15 are known to be dead, 8 patients are in excellent health and 1 who has survived the longest (five years and eight months) is not well. He has radiating pain to the penis, and orchiectomy has been advised.

Laryngoscope, St. Louis

52:593-674 (Aug.) 1942

Fenestration of Labyrinth: Report and Analysis of Operated Cases. E. H. Campbell, Philadelphia.—p. 593.
Case for the Hearing Aid. G. Berry, Worcester, Mass.—p. 615.
Salivary Calculi: Report of Thirty-One Cases. S. D. Greenfield, Brooklyn.—p. 629.
Rhinology in Children: Résumé and Comments on Literature for 1941. D. E. S. Wishart, Toronto, Canada.—p.—639.

New Orleans Medical and Surgical Journal

95:99-156 (Sept.) 1942

*Ether as Anesthetic of Choice in Prolonged Operations. J. A. Danna, New Orleans.—p. 99.
Diagnosis and Treatment of Some Common Ailments of Female Urinary Tract. U. S. Hargrove, Baton Rouge, La.—p. 102.
Abdominothoracic Gunshot Injuries. F. L. Loria, New Orleans.—p. 105.
Protein Malnutrition in Pregnancy. R. E. Arnell, W. F. Guerriero, D. W. Goldman, Eleanor Huckeby and Anna M. Lutz, New Orleans.—p. 114.
Importance of Early Diagnosis in Glaucoma. H. N. Blum, New Orleans.—p. 127.
Cancer of Larynx. F. E. LeJeune and P. J. Bayon, New Orleans.—p. 132.
Clinicopathologic Study of Diabetes Mellitus in the South. H. T. Engelhardt and F. E. Bruno, New Orleans.—p. 137.

Ether in Prolonged Operations.—Danna states that, with the use of ether as the anesthetic for long operations, a major operation, including the most serious abdominal surgery, can be continued over an additional period of one hour or more after a patient has been surgically anesthetized for not less than fifteen minutes. The exact time probably depends on individual peculiarity; in 1 instance the operation was continued for two hours and fifteen minutes after an initial twenty minutes of anesthesia. The analgesia produced by ether continues long after the patient is sufficiently conscious to carry on intelligent conversation. The patients have no toxicity and feel fine on awakening immediately or soon after they reach their room. They have little or no nausea or vomiting, little or no shock and practically no postoperative complications. This method of anesthesia requires no complicated costly anesthesia machines and it can be administered by an unskilled anesthetist, which is of especial importance in wartime, when transportation facilities are limited and the lack of specially trained anesthetists must be faced.

New York State Journal of Medicine, New York

42:1503-1598 (Aug. 15) 1942

Industrial Dermatoses: Protective Methods for Prevention of Industrial Dermatoses. L. Schwartz, Bethesda, Md.—p. 1525.
Id.: Skin Irritants. E. D. Osborne and J. J. Hallett, Buffalo.—p. 1529.
Id.: Sensitization. R. L. Baer, New York.—p. 1531.
Commercially Available Newer Endocrine Products. W. A. Schonfeld, New York.—p. 1538.
Abscess of Brain: Medical Diagnostic Aspects. G. M. Beck and I. Hyman, Buffalo.—p. 1548.
Psychopathologic Reactions and Electric Shock Therapy. B. C. Glueck Jr., Ossining.—p. 1553.
Employment of Diabetics: The Diabetic in Defense Program. H. O. Mosenthal, New York.—p. 1558.
Stuttering: Psychosomatic Disorder. J. S. Greene, New York.—p. 1561.
Water Balance. L. C. Reid, New York.—p. 1566.

Southern Surgeon, Atlanta, Ga.

11:613-684 (Sept.) 1942

*Treatment of Lung Abscess. P. W. Sanger, Charlotte, N. C.—p. 613.
Postoperative Thrombophlebitis. G. T. Tyler Jr., Greenville, S. C.—p. 624.
Broad Ligament Varicosities. W. O. Johnson, Louisville, Ky.—p. 630.
Thoracoplasty in Treatment of Pulmonary Tuberculosis. C. D. Whelchel, Gainesville, Ga.—p. 640.
Traumatic Amputation of Finger Tips. S. R. Terhune and M. N. Camp, Camp Polk, La.—p. 646.
Surgical Lesions of Colon. R. L. Sanders, Memphis, Tenn.—p. 652.
Chest Injuries. R. O. Joplin, Louisville, Ky.—p. 667.

Treatment of Lung Abscess.—The decision whether surgical drainage is indicated in pulmonary abscess hinges on two factors: the accuracy with which the future course of development can be anticipated, that is, the likelihood of spontaneous cure, and the safety of the technic with which the transpleural drainage is carried out. Both problems are discussed by Sanger as they came up in 21 cases, 19 of which were treated by a modified one stage method of external drainage. Surgical intervention should be carried out as soon as it is evident that bronchial drainage is unsatisfactory. Medical treatment should be abandoned if the temperature remains elevated, if roentgen study shows progress of the lesion and if cessation of the sputum without abatement of symptoms indicates occlusion of a heretofore drainage bronchus. Transpleural drainage is indicated if the abscess is near the pleural surface, if it is possible of being localized accurately and if the procedure does not endanger complications. The mortality rate for the series was only 4.75 per cent, although nine to five hundred and forty days has elapsed between the diagnosis and the institution of external drainage.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

54:193-222 (July) 1942

Phytophotodermatitis. R. Klaber.—p. 193.
Preliminary Observations on Disordered Fat Metabolism in Some Skin Diseases. E. C. Dodds, H. MacCormac and J. D. Robertson.—p. 212.

British Journal of Ophthalmology, London

26:337-384 (Aug.) 1942

Statistical Analysis of 3,219 Persons Certified Blind at Regional Clinic for Certification of the Blind, Glasgow and Southwest Scotland, During the Period 1929-1935. J. Marshall and H. E. Seiler.—p. 337.

British Medical Journal, London

2:89-118 (July 25) 1942

Rehabilitation in the Emergency Medical Service. R. S. Woods.—p. 89.
*Diphtheric Heart Disorders in Children. C. Neubauer.—p. 91.
Intrauterine Infection of Fetus by Gas Gangrene Organisms: Case. F. H. Kemp and J. A. Stallworthy.—p. 94.
Thiourea and Wound Repair. W. R. Fearon.—p. 95.
Cervical Rib and Hyperhidrosis. E. D. Telford.—p. 96.
Desert Sores. H. M. Rapport.—p. 96.

Diphtheric Heart Disorders in Children.—Neubauer reports 100 cases of diphtheria in which there were myocardial lesions. The disorders fell into three groups: lesions of the heart musculature, abnormalities of rhythm and interference with conductivity. The chief clinical signs of the myocardial lesion were listlessness, pallor and increase or decrease in the pulse rate. Albuminuria may be found and, if pronounced, is a grave prognostic sign. In the electrocardiogram alterations of the T wave, ST stretch or of both were often found. The abnormalities of rhythm may be sinus tachycardia, bradycardia or arrhythmia or extrasystoles. Interference with conductivity may be caused by partial or complete auriculoventricular block. Partial bundle branch block was present in 19. This, as well as partial auriculoventricular block, can be definitely diagnosed only by electrocardiography. Complete bundle branch block was present in 4. The electrocardiogram has shown that auricular fibrillation not only occurs in severely damaged hearts but may also be seen as a transitory phenomenon in children whose heart muscle is not damaged. Transitory auricular fibrillation may arise in children during diphtheria and may last a few hours or a few days. No abnormal clinical signs can be detected either before or after the attack, and the patient is not disturbed or distressed. The prognosis is good. The electrocardiogram shows typical auricular fibrillation, but there are no other signs of myocardial damage. The prognosis of auricular fibrillation in the severely damaged heart is poor, especially in those cases in which congestion was present before the fibrillation started. Death from diphtheric heart disorders in children may sometimes occur with startling suddenness in the first ten days of the disease. This often happens in severe cases of the nasopharyngeal type due to the gravis strain of the organism. The fatal issue is usually brought about by gross myocarditis, acute complete heart block or ventricular tachycardia. An electrocardiographic investigation is desirable in the treatment of any case of diphtheria other than the mildest, and especially when there is reason to suspect myocardial damage. When evidence of a myocardial lesion has been found the patient should not be discharged until the electrocardiogram has returned to normal.

Lancet, London

2:87-116 (July 25) 1942

Fibrin Suture of Human Nerves. H. J. Seddon and P. B. Medawar.—p. 87.
*Pulmonary Tuberculosis in Servicemen: Analysis of 300 Cases. J. H. Crawford.—p. 89.
Acute Pulmonary Hyperemia and Edema of Upper Lobes. C. B. Prowse.—p. 92.
*Spondylosis Deformans in Relation to Fluorine and General Nutrition. F. H. Kemp, Margaret M. Murray and Dagmar C. Wilson.—p. 93.
Chronic Diarrhea Due to Trichocephalus Trichiurus. D. F. Ross.—p. 97.

Pulmonary Tuberculosis in Servicemen.—An analysis of 300 consecutive cases of pulmonary tuberculosis among servicemen by Crawford reveals the need for more detailed examination of men prior to enlistment, as two thirds of the cases could, in his opinion, have been detected at the initial medical examination had roentgen study been included as a routine procedure at the recruiting boards. Only 48 of the patients had a suggestive personal or family history. Criteria for further investigation usually adopted by medical boards, while important, are unreliable for detecting all but a small proportion of the total number suffering from pulmonary tuberculosis. The admission of such men to the services is uneconomic. They constitute a constant danger to other members of the troop. Since roentgen investigation is the only reliable procedure for detecting clinically unsuspected pulmonary tuberculosis, it is hoped that the Horder committee will reconsider the problem in the light of this and other recent studies. Manufacturers of apparatus would probably be willing to set up centers and furnish teams for the detection of tuberculosis by mass methods. The results would amply repay the expenditure involved.

Spondylosis Deformans in Relation to Fluorine and General Nutrition.—The frequency of "round back" among children and adults in areas where mottled enamel was prevalent prompted Kemp and his associates to obtain roentgenograms of the spines of such subjects. As a toxic factor would be most liable to produce this change during the most active phase of bone growth and in situations of stress and strain, the spines of children were studied. Disturbances in the natural ossification of the spines of the 22 children examined were very common. Though some of the defects probably heal or improve, many young adults were found with similar deformities and with early signs of spondylosis deformans (spondylitis osteoarthritica). Dental fluorosis was commonly associated with such changes, but there is no evidence to prove that fluorine is solely responsible. Similar changes, though less definite, were demonstrated in children showing no signs of dental fluorosis, and not all children with severe dental fluorosis had changes in the spine, whereas some with only slight mottling showed significant deformities. The authors believe that fluorine in the water supply may influence the development of such defects, especially when it is associated with defective nutrition. The roentgen changes are similar to those described by Scheurmann in adolescent kyphosis, but none of the authors' patients had symptoms. They believe that spondylosis deformans (spondylitis osteoarthritica) may be the result of progressive degeneration during life of malformations acquired in youth. If this is so, such changes should be preventable. Proper posture during physical training would be useful early treatment of this spinal condition among children whose general nutrition is already being improved by the addition of milk and school dinners. Fluorine in soil and water, in association with defective nutrition, may favor such maldevelopment.

Transactions Royal Soc. Trop. Med. and Hyg., London

36:1-46 (June) 1942

Susceptibility of South African Gerbils (Genus Tatera) to Rickettsial Diseases and Their Use in Preparation of Anti-Typhus Vaccine. J. Gear and D. H. S. Davis.—p. 1.
*Yellow Fever in Western Uganda. A. F. Mahaffy, K. C. Smithburn, H. R. Jacobs and J. D. Gillett.—p. 9.
Localization of Neurotropic Strain of Yellow Fever Virus in Central Nervous System. G. M. Findlay.—p. 21.
Preliminary Report of Outbreak of Kala-Azar in a Battalion of King's African Rifles. A. C. E. Cole, P. C. Cosgrove and G. Robinson.—p. 25.
Endemic Typhus in Southern Nigeria. W. Hughes and R. B. T. Baldwin.—p. 35.
Malaria and Mud Lobster. J. W. Scharff and M. W. F. Tweedie.—p. 41.
Note on Typhoid Vi Agglutinins in Rhodesian Natives. H. Radowsky.—p. 45.

Yellow Fever in Western Uganda.—A study of four years' duration has been made by Mahaffy and his collaborators in an area in Uganda, East Africa, in which preliminary protection tests indicated that yellow fever had occurred. During the fourth year of the investigation an epidemic of yellow fever of some magnitude occurred in the area. Virus was isolated from a human case and from wild Aedes simpsoni mosquitoes. From the data obtained this outbreak in the human population was associated with contact with the forest. Once it became established in man, the principal vector of the disease appeared to be A. simpsoni.

Schweizerische medizinische Wochenschrift, Basel

72:301-316 (March 14) 1942

Discussion of Fatigue. A. von Muralt.—p. 301.
Pharmacology of Fatigue. H. Staub.—p. 303.
Deficiency Diseases. F. Koller.—p. 304.
Sudden Death in Infants and Young Children. M. H. Thelin.—p. 309.
Prolongation of Antidiuretic Effect of Anterior Pituitary Hormone by Addition of Zinc Salts: Preliminary Report. F. Földes and E. Strausz.—p. 314.
Solubility of Sulfathiazole and Acetylsulfathiazole in Urine. J. Drucy and R. Meier.—p. 316.
*Use of Blood From Universal Donor. R. Bucher.—p. 318.

Use of Blood from Universal Donor.—Bucher points out that the use of blood of the universal donor group O has been known to result in agglutination, hemolysis, shock and anuria. Schürch and Willenegger have stressed that in view of the presence of agglutinins in O blood the term "universal donor" can be applied only in a restricted sense. They demonstrated that O blood with a high agglutination titer can be given to recipients of other blood groups without complications, provided the transfusion is made slowly, only a small quantity being transfused, and provided the recipient is not exsanguinated or cachectic, so that the transfused blood is rapidly diluted. Severe shock may follow if large quantities of such blood are transfused rapidly and into exsanguinated patients. Bucher believes that, if undiluted group O blood is to be transfused into recipients of different blood groups, it would be advisable to determine first the agglutination titer against corpuscles of groups A and B. He describes a simple experiment which demonstrates that the use of suitable blood, which, however, is of a foreign blood group, may cause agglutination of the recipient's blood corpuscles already in the cubital vein. For this reason blood from a universal donor should be diluted to half with isotonic solution of sodium chloride before transfusing it into persons of other blood groups. In the undiluted form, blood of group O should be given only to group O recipients. The agglutination rapidity is reduced by one half in the half diluted serum and thus the infused blood becomes already mixed in the right side of the heart before the agglutination of the recipient's erythrocytes can take place. Transfusion can be done rapidly and without danger when using diluted universal donor blood for other blood groups. This applies particularly to the treatment of severe acute loss of blood when no blood of the same group is available. Whole blood of the same blood group is to be preferred. Plasma or serum of blood group AB and agglutinin free mixed plasma may be infused rapidly in the undiluted state. The biologic test of Oehlecker is indispensable in all cases.

Revista Chilena de Pediatría, Santiago

13:415-478 (May) 1942. **Partial Index**

*Transient Pulmonary Shadows. R. Matte and O. Correa.—p. 415.
Hypophysial Dwarfism. S. Muzzo and H. Muñoz.—p. 429.
Recent Advances in Vitamins: Vitamin B_6, or Pyridoxine. O. Correa.—p. 445.

Transient Pulmonary Shadows.—Matte and Correa report histories of 6 children between 6 and 12 years of age in whom pulmonary shadows were discovered associated with comparatively mild symptoms such as cough, coryza, headache and slightly increased temperature. The well-being and appetite were satisfactory. Search for tubercle bacilli was negative. The shadows disappeared in the course of from one to three weeks. The shadows were apparently nontuberculous in character. Had it not been for the circumstance that 4 of the children were in a sanatorium, that 1 was the son of a doctor and that the sixth had a glomerular nephritis, all conditions which implied continuous medical attention, the entire evolution of these shadows would have escaped detection. In 5 percussion was negative, in the sixth the dulness was limited, and few rales were detected in some. The author concludes that the children had a mild influenza in the course of which a transient pulmonary process developed which caused almost no symptoms and only a temporary roentgenologic shadow. Numerous observers have encountered similar shadows not only in influenza but also in measles, scarlet fever, whooping cough, typhoid, chickenpox, asthma and other conditions.

Der deutsche Militärarzt, Berlin

6:65-128 (Feb.) 1941. **Partial Index**

Evaluation and Therapy of Gastric Disorders in Military Service. G. Gmeiner.—p. 65.
Screw Traction Apparatus for Leg Fractures. K. Faber.—p. 74.
Perforative War Wounds of Eyes: Problems of Transport and Therapy. K. Hartmann.—p. 76.
Unusual Neurologic Disorders with Difficult Diagnosis in Recruits. Mahlo.—p. 83.
Experimental Study of Active Immunization Against Typhoid and Dysentery; Combined Inoculation Including Tetanus Immunization. F. Sartorius and K. W. Clauberg.—p. 90.
*Experiences in Two Outbreaks of Dysentery in Camps. Dötzer and Schuller.—p. 95.
*Meckel's Diverticulum: Clinical Aspects and Pathology. W. Heyn and H. R. Döhnert.—p. 103.
Evaluation of Effects of Military Service on Otosclerosis as Service Disability. W. Gaus.—p. 104.

Dysentery in Camps.—Dötzer and Schuller state that in October 1939 a large number of men were brought into a camp without quarantine enforcement or an immediate thorough medical examination. The newly interned were separated from the other part of the camp (B) by a wire fence. Cases of diarrhea appeared among the newly interned in part A. Safety measures were instituted as in bacterial intestinal disorders, but the enforcement of these measures encountered difficulties. The incidence of diarrheal disorders increased and the same type of disorder appeared in the other part of the camp. The diagnosis of dysentery was verified by bacteriologic examination. Dysentery strains of types Y and E were detected. They had a low toxin content. The detection of the same types of dysentery bacilli in both parts of the camp (A and B) and the time of appearance suggest that the disease was introduced by the newly interned men. In their part of the camp (A) the disease spread with great rapidity. To prevent dissemination of infectious material beyond the camp, ditches were dug around it and were filled with chlorinated lime. Although the detected types of dysentery bacilli had a comparatively low toxin content, the clinical aspects were those of a severely toxic dysentery. Necropsies disclosed extensive ulcerations and necroses in the entire colon and in parts of the small intestine. In the other part of the camp (B) the epidemic presented a much milder course. The patients had mucosanguineous stools, but the temperature was only slightly increased. The average duration of dysentery was thirteen days, but in many cases it lasted only six days. Necropsies did not disclose as severe lesions as had been found in the other part of the camp. The author ascribes the difference in the clinical course in the two parts of the camp to the differences in the general condition of the inmates and to disregard for bodily hygiene on the part of the inmates in section A of the camp. According to Kruse's suggestion the bacteriologic examinations were made by means of smears directly from the ampulla recti. Elimination of bacilli continued after the termination of the attack for from three to thirty days. To shorten the period of excretion of bacilli irrigations were made with rivanol and soap solution and the use of dysentery phages. Of 24 refractory carriers, 12 were treated with dysentery bacteriophages and the other 12 with rivanol or soap solution. In those treated with dysenteric phages the bacilli disappeared from the feces within a week, whereas 4 of those treated with rivanol and soap solution continued to eliminate dysentery bacilli.

Meckel's Diverticulum.—Heyn and Döhnert cite histories of 2 soldiers, aged 24 and 23, with severe abdominal symptoms. The first patient was operated on with a diagnosis of ileus. An adhesion which had constricted several intestinal loops was severed. A diverticulum came into view, which was covered with pus. The patient died and necropsy indicated that death was due to peritonitis. The second patient was operated on with a diagnosis of acute appendicitis. The appearance of the appendix did not explain the severe abdominal symptoms. Examination of the small intestine revealed a severely inflamed diverticulum 40 cm. proximal to the cecum. It had a perforation at the base through which intestinal contents escaped. The diverticulum was resected. The postoperative course was complicated, but the patient recovered. Microscopic examination of the diverticulum disclosed that it was lined with gastric mucosa, that a peptic ulcer had developed and that the ulcer had perforated.

Acta Medica Scandinavica, Stockholm

109:1-210 (Nov. 10) 1941. **Partial Index**

*Erythema Nodosum from Point of View of Venereal Lymphogranuloma. S. Hellerström.—p. 1.
*Oscillometric Investigations During Work on Patients Suffering from Neurocirculatory Asthenia (Effort Syndrome): Preliminary Report. B. C. Christensen.—p. 21.
Thrombosis of the Popliteal Artery: Report of Three Cases. B. C. Christensen and P. Schultzer.—p. 31.
Influence of Some Mineral Diet Factors on Blood Sugar Regulation. J. H. Vogt.—p. 37.
Deficiency of Anti-Pernicious Anemia Principle in Liver Extract from Swine After Elective Resection of the Fundus of the Stomach. S. Petri, J. Bing, E. Nielsen and A. K. Nielsen.—p. 59.
*Renal Blood Flow in Healthy Persons and in Patients with Hypertension and Renal Diseases. K. Steinitz.—p. 95.
*Experiences with Compound Having Activity of Adrenal Cortex Hormone in Addison's Disease with Emphasis on Depot Therapy. V. Jonáš and Marian Jelinek.—p. 134.

Erythema Nodosum in Venereal Lymphogranuloma.—Hellerström's studies on venereal lymphogranuloma over a number of years throw light on the problem of erythema nodosum. Erythema nodosum becomes manifest simultaneously with cutaneous allergy and, like the latter, reaches its maximum when the inguinal adenitis is most severe and there is adherence to the covering skin, which is usually the case from four to six weeks after the infecting coitus. At this time Frei's intracutaneous reaction is likewise most intense. Erythema nodosum not infrequently develops after interventions that influence the allergic status. Thus it is often possible to produce erythema nodules by the intracutaneous injection of Frei antigen. The author suggests that the pathogenesis of erythema nodosum is that of a vigorous aliergic activity on the part of the skin. The eruption is the manifestation and result of an allergic reaction on the part of the skin against the micro-organisms and probably also their allergens, which reach the skin by the hematogenous route from the primary focus. The author's opinion is supported by his intravenous administration of Frei's antigen, which elicits a protracted allergic reaction and which may provoke erythema nodosum. Erythema nodosum occasionally develops in surgical operations, in the course of which allergenic substances may accidentally enter the blood stream. The author believes that for the study of these problems venereal lymphogranuloma is a "model disease" and offers better possibilities for investigation than does tuberculosis. Erythema nodosum is a morphologic but not an etiologic entity. Various agents may elicit the disease.

Oscillometry During Work in Neurocirculatory Asthenia.—Christensen studied patients with neurocirculatory asthenia, with the aim of developing a functional test which might furnish information regarding their fitness for military service. Krogh's cycloergometer was used. Oscillometric measurements were made with the optic self-recording oscillograph of Eldahl. The oscillometric curve gives information regarding the arterial pressure and the strain on the arterial wall. Observations were made on healthy subjects and on patients with neurocirculatory asthenia. The blood pressure and pulse rate variations during work agree with those obtained by other investigators. The altered reaction of the large arteries during exertion have not been previously observed. In connection with muscular work there occurs dilatation of the vessels in the exercised muscles, which might cause a fall in the arterial pressure if the organism did not at once empty its blood reservoirs. This increase in the circulating blood, combined with the decreased peripheral resistance in the working muscles, will alleviate the diastolic filling of the heart and will thus be capable of producing the required augmented output of the heart in sound persons. Since it is chiefly the blood flow through the working muscles which has to be augmented, it might be thought that a compensatory contraction of the arteries outside the working extremities would take place so that a larger part of the cardiac output would be available for the working muscles. The oscillometric curves demonstrate, however, that this does not happen in healthy subjects. In neurocirculatory asthenia, in which the heart is possibly small, drop shaped or pendulous, it might be thought that the heart requires a higher pressure in the central veins in order to increase its beat volume. This high pressure in the central vein might be obtained by driving a larger part of the blood through the working muscles where the resistance is less than in the rest of the arterial tree. Experiments have proved that the arteries outside the working extremities are contracted during work in these patients. The author also cites observations by Munch-Petersen and thinks that the demonstrated reaction is due to hyperirritability in the vasomotor centers, even if the reaction demonstrated facilitates the circulation during work.

Renal Blood Flow in Health and in Hypertension or with Renal Disease.—Steinitz directs attention to the nonsurgical method of determination of the renal blood flow which was described by Chasis and his collaborators. The mean values of renal plasma flow (diodrast clearance) and of glomerular filtration (inulin clearance) detected by him were in the same range as those reported by Chasis and his collaborators, Ranges, Goldring and Smith. In 4 out of 6 cases of essential hypertension the renal blood flow and the glomerular filtration were found within the normal range. This indicates that a decrease in the renal blood flow is not a necessary and characteristic attribute of essential hypertension and that it is advisable to continue to differentiate essential hypertension as a distinct entity from renal hypertension. The author studied the renal blood flow and the glomerular filtration also on patients with malignant hypertension, with acute nephritis and with the nephrotic syndrome. The method discloses that the renal form of hypertension may take two courses: either some glomeruli are entirely excluded by the pathologic process and in the functioning ones the tonus of the afferent and efferent vessels is regulated so that the filtration remains almost normal, or the process is localized chiefly in the vasa efferentia, which induces a compensatory increase of filtration and urea elimination. In the 2 examined cases of acute nephritis, the filtrating surface was greatly reduced. It can be concluded from the low filtration fraction that in the still functioning renal units the tonus of the vasa efferentia does not dominate over that of the vasa afferentia. In the cases with the nephrotic syndrome the filtration fraction is near the lower limit of normality, which indicates that a relatively great renal blood flow is accompanied by a normal or low glomerular filtration. The author suggests as a possible explanation of this relative hyperemia a decrease in the tonus of the vasa efferentia, which in turn elicits a decrease in the filtration pressure analogous to the hyperemia brought on by fever.

Desoxycorticosterone Acetate.—Jonáš and Jelínek present a critical evaluation of desoxycorticosterone acetate therapy in Addison's disease. Their evaluation is based on reports in the literature and on their own experiences. There is as yet no agreement whether this synthetic preparation is a complete substitution for adrenal insufficiency. The disturbances in the carbohydrate metabolism are less amenable to treatment than are other metabolic defects. This is of decisive importance for the restoration of the muscle force. The working capacity of a patient with Addison's disease depends to a great extent on the type of occupation. The presence of a tuberculous process is often decisive for the course and the ultimate fate of the patient. Intercurrent fevers, surgical interventions and pregnancy may also interfere with the therapeutic results. Edema and hypertension are not manifestations of the toxicity of the adrenal preparation but are caused by the simultaneous administration of unusually large quantities of sodium salts. It is now regarded as incorrect to prescribe a potassium deficient diet for patients undergoing treatment with the adrenal preparation. The authors observed a noticeable modification of the different metabolic processes and an improvement in the general condition and in some clinical symptoms following the prolonged administration of large doses of the synthetic adrenal hormone. The implantation of tablets of crystalline desoxycorticosterone acetate produced favorable results in 2 cases. The improvement is approximately like that obtained with daily injections of 10 mg. The depot therapy with the synthetic preparation was accompanied neither by an increased administration of sodium salts nor by a reduction in potassium salts. Administration of large doses produced no unfavorable results.

Book Notices

Digest of State and Federal Laws Dealing with Prostitution and Other Sex Offenses, with Notes on the Control of the Sale of Alcoholic Beverages as it Relates to Prostitution Activities. Compiled under the direction of Bascom Johnson, A.B., LL.B., Associate Director, in Charge of Legal and Protective Measures, American Social Hygiene Association, New York. By George Gould, A.B., LL.B., M.A., Legal Consultant, American Social Hygiene Association, and Roy E. Dickerson, LL.B., LL.M., Executive Secretary, Cincinnati Social Hygiene Society. Cloth. Price, $5. Pp. 453. New York: American Social Hygiene Association, Inc., 1942.

In response to many requests received from officials, voluntary agencies and state and community leaders, the American Social Hygiene Association has compiled this digest of state and federal laws dealing with prostitution and other sex offenses. Arranged by states, the material is grouped under four main headings: (1) Activities of Exploiter of Prostitute Prohibited, (2) Activities of Prostitute or Her Customer Prohibited, (3) Other Sex Offenses Prohibited and (4) Supplementary Laws, including laws concerning the sale of alcoholic beverages. This volume is complementary to a digest published by the same association in 1940 and revised as of July 15, 1941, covering the laws and regulations that have been enacted or promulgated relating to the prevention and control of syphilis and gonorrhea. Together they make available in a convenient form digests of all the legal measures, both state and federal, that exist to deal with those diseases that are responsible for four times more disability than any other single cause in the army. Both digests have been carefully prepared, and every effort has been made to achieve accuracy and completeness. They afford a ready means, first, of determining what legal remedies are available in each state to reduce the incidence of syphilis and gonorrhea and, second, of comparing the legal remedies of one state with those of other states. As reference volumes, both the digest of laws relating to prostitution and the digest of laws relating to the correlated subject of the venereal diseases are distinct and timely contributions.

Skin Grafting from a Personal and Experimental Viewpoint. By Earl Calvin Padgett, M.D., F.A.C.S., Professor of Clinical Surgery, University of Kansas School of Medicine, Kansas City, Kansas. Cloth. Price, $4.50. Pp. 149, with 65 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas, 1942.

The author and Professor Hood of the University of Kansas have perfected a calibrated mechanical device for cutting skin at virtually any predetermined thickness. This volume presents a brief for a "three quarter thickness" graft, which can be cut with ease when this ingenious device is used. The advantages of this somewhat thicker type of graft over the intermediate grafts of Thiersch and Blair are outlined. The first three chapters include a brief historical outline of the landmarks in the development of this phase of surgery and a discussion of the fate of autogenous, homo and hetero transplants. Remarks on the preservation and histology of skin grafts are also included.

The author gives three reasons to support the view that the "three quarter thickness" graft has certain advantages over the Thiersch type of graft:

1. The degree of contraction of the base of a wound is proportional to the thinness of the overlying graft. In some areas the graft may contract as much as 60 per cent.
2. The final appearance of the "three quarter thickness" is cosmetically superior to the thinner grafts.
3. It does not, on the other hand, possess the disadvantages of the full thickness graft. If a full thickness graft is applied to a granulating surface, it is seldom that a take is obtained.

The ingenious dermatome of the author provides a method for cutting a uniform sheet of skin at a predetermined level with mechanical precision. Whereas the Thiersch graft as cut with the hand knife may vary considerably, the dermatome graft may be cut accurately in any range from 0.008 to 0.024 inch. (A full thickness skin graft in an adult varies in thickness from 0.032 to 0.040 inch. The "three quarter thickness" graft is cut at a level 75 to 95 per cent of the thickness of the skin.)

The chapter describing the dermatome unfortunately gives little information on the actual technic of its use. One desiring details as to the method of operation will have to look elsewhere. Likewise the book lacks the necessary detail to be recommended as a textbook for student use.

If the sulfonamides are of value in this type of surgery either in the preparation of recipient areas or for application at the time of grafting, the author is perhaps guilty of an important omission, as there is no mention of this subject. The use of split thickness grafts in the primary treatment of war wounds in which there has been avulsion of skin (compound fractures and so on) does not receive any comment. The careful attention of the publisher to details of printing and design has resulted in a book with physical and artistic qualities deserving of praise.

A Monograph on Adolescent Spondylitis or Ankylosing Spondylitis: The Early Diagnosis and its Treatment by Wide-Field X-Ray Irradiation. By S. Gilbert Scott, M.R.C.S., L.R.C.P., F.F.R., Consulting Radiologist to the London Hospital, London. Published under the auspices of the Nuffield Wide-Field X-Ray Therapy Research. Research No. 1. Cloth. Price, $4. Pp. 132, with 21 illustrations. New York & London: Oxford University Press, 1942.

The author is well known for his book "Radiologic Atlas of Chronic Arthritis (The Hand)." Scott describes a type of patient who if taken in time can be saved but if neglected either by misdiagnosis, ignorance or neglect will become what is called a "horrible example," which is illustrated in the frontispiece as a "spondylitic wreck." The so-called adolescent kyphosis is not a specific pathologic entity but in reality an excessive kyphosis associated with the final stages of adolescent spondylitis. It is imperative that the syndrome be recognized because it can be completely arrested by the use of wide field roentgen therapy during the prespondylitic stage. Any type of spondylitis that may lead eventually to deformity is called spondylitis deformans. Spondylitis that attacks the young adult is called ankylosing spondylitis, which Scott prefers to call adolescent spondylitis. Spinal arthritis of the elderly or aged patient is known as spondylitis osteoarthritica or "old man's spondylitis." Scott suggests the term adolescent spondylitis for ankylosing spondylitis that attacks the young adult. In eight years as physician-radiologist to the British Red Cross Clinic and Charterhouse Rheumatism Clinic he has collected the records of 300 established cases. The onset is insidious, extending over a period of five to seven years before the appearance of spinal symptoms. It attacks the young, healthy athlete, usually the male. The only clinical sign may be pain in the hip, ankle or in fact of any part except the back or the sacral region. Infective changes are always present in the sacroiliac joints. During the active stages pain is not felt either over the sacroiliac joints or in the back. Bony ankylosis of the sacroiliac joints is nearly always complete by the time the clinical signs of spondylitis appear. The sacroiliac joints always present pathologic changes.

The painful and stiff spine so characteristic of spondylitis described in textbooks represents the last and not the first chapter of the disease. The author describes the advances in obtaining a complete roentgenographic record of sacroiliitis. He finds that stereoscopic films are of little advantage and that the most reliable information is obtained from roentgenograms taken in the strict standard position. The author is responsible for the treatment of sacroiliitis, which is synonymous with what Americans call sacroiliac disease or sacroiliac arthritis. He describes the normal sacroiliac joint and illustrates it with gross anatomic specimens and roentgenograms.

If this disease is to be eradicated, radiologists must assist by making themselves familiar with the early changes in the sacroiliac joints associated with the prespondylitic phase. Every physician should be able to recognize the characteristic clinical history. Attacks of rheumatic pains referred not to the back or sacroiliac joints but to various parts of the body, occurring in a young adult over a period of years, should always suggest a radiologic study of the sacroiliac joints.

There is a short chapter on the interpretation of the roentgenograms of the sacroiliac joints in the first, second and third

stages of the disease. Differential diagnosis considers tuberculous sacroiliitis, tuberculous hip, sacroiliitis associated with spondylitis, tuberculous disease of the hip joint and hip symptoms associated with spondylitis.

Introduction to the Microtechnique of Inorganic Analysis. By A. A. Benedetti-Pichler, Dr. Techn. Sc., Assistant Professor of Chemistry, Queens College, Flushing, N. Y. Cloth. Price, $3.50. Pp. 302, with 84 Illustrations. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited, 1942.

The systematic development of inorganic microchemistry is attributed mainly to the efforts of F. Emich, with whom the present author was associated as a student. The universality of Emich's thinking, acuteness of observation and the applicability of his experimental technics have resulted in an international school of microchemistry. The present book is based largely on the fundamental principles of the Emich school.

This volume replaces the "Introduction to the Microtechnique of Inorganic Qualitative Analysis" by A. A. Benedetti-Pichler and W. F. Spikes. It is not intended as a comprehensive treatise on microchemistry but rather as a working text for those who wish to acquire a general knowledge of the technics and apparatus involved in handling small quantities of material. For this purpose it serves admirably, as the book has evolved from the author's classroom experience in teaching microchemistry at Washington Square College and Queens College. It fulfils the student's need for sound basic training together with sufficient information to enable him to apply the knowledge to specific problems.

A description of apparatus for general use is treated in the first forty pages of the text. There follow 128 pages on qualitative analysis in which is included information on spot tests, slide tests, fiber tests, test tube tests and bead tests with selected reactions which have been found through long experience to yield consistently good results. The section on microtechnic of qualitative analysis includes mechanical manipulation, work on microscope slides, work in capillaries, observation of color, centigram procedures, milligram procedures and microgram procedures. A scheme for the separation and identification of the copper and arsenic group of elements is included under milligram procedures. Besides providing a working plan for these separations, the scheme illustrates what may be accomplished in the separation of small amounts of material and is a guide to the application of macro analytic schemes to micro quantities.

A section on quantitative microanalysis (sixty-three pages) treats centigram, milligram and microgram procedures both in gravimetric and in titrimetric analysis.

Numerous illustrations of apparatus and technics are included. The material is well organized and presented in a logical, concise style. References to the original literature are given for a large number of the tests, technics and apparatus. The appendix includes a bibliography and sufficient information for setting up a basic course in inorganic microanalysis.

The Ophthalmic Formulary. Compiled by G. Griffin Lewis, M.D., F.A.C.S., Oculist to the Crouse-Irving Hospital, Syracuse. Containing the Favorite Prescriptions of Prominent Oculists from All Parts of the World. Fabrikoid. Price, $3.50. Pp. 167. Springfield, Illinois & Baltimore: Charles C Thomas, 1942.

The author has collected from standard textbooks and works on therapeutics and through personal correspondence what he describes as "the favorite prescriptions of prominent oculists from all parts of the world." The prescriptions are listed under headings comprising the conditions or purposes for which they are employed, which are arranged alphabetically. Use is made of both the metric and the apothecary's system, according to the source from which the prescription was obtained. The source is credited to the name of the contributor without reference, and apparently without any implication that the prescription was original with the contributor named. Blank pages are left for additions by the reader. The author has included a number of remedies which seem strange to the present generation. Thus it will be news to many that fluidextract of aconite in boric acid solution was ever used locally in conjunctivitis, or a combination of tincture catechu and aquae laurocerasi in blepharitis. It is interesting to note that A. M. Ramsay employed quinine internally for such conditions as chronic glaucoma and retinitis pigmentosa. The use of oil of cajeput and brandy for flatulence after the cataract operation might, on second thought, prove effective, as one dose of this mixture would be calculated to restrain the patient from indulging his infirmity. One misses certain modern drugs of undoubted value. Thus under "anesthetics, local," alypin is included, but neither pontocaine nor butyn. Neither epinephrine nor its newer derivatives are mentioned as mydriatics. A number of misprints have escaped the proofreader. Following the formulary are twenty-six pages of ophthalmic materia medica, in which drugs are listed alphabetically, with a brief note as to the uses of each. The index lists only conditions for which drugs are employed. It is not the author's intention to present his own conclusions concerning therapeutics and he has not done so. For the ophthalmologist or general practitioner who has no very definite ideas on the subject and who wishes to find quickly what remedies have been used in certain conditions, the book affords a handy source. What results he will obtain by employing some of the prescriptions he will find here, the reviewer is not prepared to state. The publisher has produced a very attractive little volume.

Synopsis of Blood Diseases. By A. Piney, M.D., M.R.C.P., Physician, St. Mary's Hospital for Women and Children, London. Fabrikoid. Price, $2.75. Pp. 120, with 4 plates. Philadelphia: Blakiston Company, 1942.

This small handbook is interesting and is quite a departure from other recent books on hematology. In fifteen chapters concise, minimal descriptions of the symptoms and signs, the blood changes, the pathology and the treatment of the standard diseases of the blood and blood forming organs and certain systemic conditions are given. There are a number of tables and a folding page giving a description of the size, cytologic characteristics and staining reaction of each kind of blood cell. The book may suffer at first by comparison with the larger hematologies, but for its intended purpose, a hematology book for physicians, general practitioners and students in which "no attempt has been made to go into details that are of interest only to hematologists and clinical pathologists," it has a definite use. A glossary of hematologic terms is given. The list of reference books under the heading of "Literature" is rather scanty and is predominantly British. Because of the absence of theoretical and controversial material, this is a handy reference book for rapid consultation.

Handbook of Medicine for Final Year Students. By G. F. Walker, M.D., M.R.C.P. Second edition. Cloth. Price, 21s. Pp. 320. London: Sylviro Publications, Ltd., 1942.

The preface states that this handbook is intended for senior students and for practitioners doing hospital work or revising for higher examinations. It is aimed at assisting the student in selecting what will be important to him not only in his final examinations but in actual practice. To the reviewer's mind the material in this book is far too condensed and it is difficult to believe that it can contain anything which a well trained student or practitioner would not already know or could not find more adequately discussed in modern and readily available textbooks. The evident fact that there is a demand for this type of compilation is presumed to be a reflection of continued overemphasis on examinations rather than on sound fundamental training for medical practice.

Solving School Health Problems: The Astoria Demonstration Study Sponsored by the Department of Health and the Board of Education of New York City. By Dorothy B. Nyswander, Ph.D., Director of the Study. Cloth. Price, $2. Pp. 377. New York: Commonwealth Fund; London: Oxford University Press, 1942.

This book reports how the actual staff of the community functioned and how, by teamwork and cooperation of all concerned with school health work, they can do the best possible job with the tools at hand. Actual practices were studied and, if found wanting, changed, restudied and changed again. The sixteen chapters include adequate, dispassionate discussion of the school physician and his job, teacher participation, educational opportunities of the nurse as well as her daily tasks, keeping school medical records alive and the private physician and the school health program. For those physicians who take seriously their work in school health this book is ideal.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BED REST AND EXERCISE RESTRICTIONS AFTER CHILDBIRTH

To the Editor:—**There is an acute shortage of beds in the hospitals for maternity patients in this district. This brings up the question of how long it is necessary for patients to stay in bed after delivery. What are the reasons for staying in bed any certain length of time and how long should it be?**

Nathan J. Barlow, M.D., Bell, Calif.

ANSWER.—The question of how long patients should be required to remain in bed after delivery has been debated back and forth for years without having been authoritatively settled. The general rule in this country and in Great Britain has been to keep them in bed until the uterus has involuted to the point where the fundus is no longer palpable, or barely so, above the symphysis pubis, this being usually from the seventh to the ninth day.

To allow a woman out of bed earlier than this invites undue weight and strain on the overstretched but involuting ligaments, as well as on the fascial and muscle supports of the pelvic floor, leading to prolapsus of some degree and retrodisplacements of the uterus. Moreover, a patient with a sutured perineum requires at least a week for union and healing, if poor results are to be avoided. These are mechanical reasons for rest in bed for a week to ten days after delivery.

Late hemorrhage, infection and delayed or prolonged convalescence with possible interference to the breast milk supply, especially if anemia is present, are less tangible clinical reasons against early rising.

All of this is bound closely to the fact that the average woman displays little or no common sense about her care after confinement and this is, perhaps, a psychic reason why she should be restrained to her bed for a reasonable period and then confined "on the second floor, without stair climbing" until about four weeks post partum. Stair climbing in itself does no harm, but this is a convenient way of preventing too early a dash to bridge parties or to the laundry tubs, as the case may be. So many will disregard instructions anyway that it is best to make them maximum.

Several years ago Gauss in Freiberg of the "twilight sleep" fame advocated having puerperal women out of bed on the second or third day. The average woman in that community looked like an old woman at 40 and little has been heard elsewhere of his theories.

A compromise for overcrowded maternity hospitals might be to discharge patients by ambulance to their homes on the seventh or eighth day with printed, not oral, instructions about their further care, augmented by visits from public health nursing services, if available.

DANGEROUS ANESTHETIC METHOD

To the Editor:—**The following mode of brief anesthesia has been used as a joke played by boys on one another. Please tell me whether you consider it dangerous. If not, might it not be used for such purposes as to open abscesses and other brief procedures in the "backwoods" if one has no other method at hand: The subject takes a long series of deep breaths, ending by holding his breath. The other party seizes him around the chest from behind with both arms and squeezes his chest tightly. The subject quickly loses consciousness.**

M.D., Florida.

ANSWER.—This method of producing loss of consciousness is a modification of the early experiment of Valsalva (1666-1723) and was studied by Luckhardt and Johnson (*Am. J. Physiol.* **83:** 642 [Jan.], **84:** 453 [March] 1928). Through an analysis of the effects of raised intrapulmonic pressure in dogs and man they showed that this brings about a slowing of the heart by stimulating the cardioregulatory center reflexly, which also comes as a result of direct central asphyxia. The authors were able on human subjects to cause a primary drop in blood pressure of 50 mm. of mercury with a secondary rise of 24 mm. above normal. Modifications of the Valsalva experiment of raising the intrapulmonic pressure have been employed clinically in cases of tachycardia in an attempt to reduce the heart rate. All authors are agreed that the procedure is dangerous to patients with a weakened heart. To quote from Luckhardt and Johnson, "If in the supine position the systolic pressure can be more or less suddenly dropped 40 to 72 mm. of mercury, such compression causes most probably an even greater drop in pressure when the person is in an upright position, as is usually the case. The giddiness occasioned in the course of the compression results from the impairment of the arterial circulation through the brain, and if in a given individual the compression is so marked and prolonged that the left heart receives little or no blood, complete unconsciousness (anesthesia) results because of a complete absence of cerebral circulation. The general passive congestion is, to say the least, not beneficial or entirely innocuous. But what is more deleterious is the sudden change in blood pressure from a very low point to one exceeding the normal some 30 mm. or more (man). The more or less sudden and pronounced after-fling may easily lead to rupture of arterioles especially if the latter are already weakened by disease. The sensation of fulness in the head, headache, nausea, ataxia and vertigo, which are experienced immediately on release of the compression and which may last for hours, are cerebral disturbances resulting from mild injury to the nervous tissues. The experiment is harmful when performed on healthy individuals; it may prove disastrous when performed on an individual having even slight myocardial or vascular lesions." It is doubtful if this method of anesthesia could be used any more effectively than choking to the point of unconsciousness or a knockout blow on the head for minor surgery in the "backwoods," and it is probably just about as dangerous.

PREVENTION OF SKIN IRRITATION FROM LIME DUST

To the Editor:—**An industrial plant uses large quantities of lime. The lime is received in bags, and the men who handle these bags get a considerable quantity of lime dust on their skin. They are protected by goggles, filter masks and gloves. The lower extremities are protected by trousers which are tied around the ankles; however, because of the heat it is almost impossible to get them to wear protective clothing on the trunk, and most of them work stripped to the waist. The accumulation on the skin of the lime, mixed with perspiration, produces frequent burns of the skin, particularly in the folds. Can you furnish me with information concerning some kind of protective application to the skin to prevent these burns? I had in mind the use of an ointment, with petrolatum jelly as a base, that could be easily and cheaply prepared in large quantities, that would cling to the skin sufficiently to protect it and, possibly, have a neutralizing effect on the lime also. Any information or suggestions that you could give to me on this subject would be greatly appreciated.**

Alfred D. Mason Jr., M.D., Memphis, Tenn.

ANSWER.—No cream or ointment can be expected to furnish full protection against burns of the skin from lime, but their use is advocated nevertheless. Some plain ointment materials such as hydrous wool fat or petrolatum are of some value, the preference always being for that harmless material low in cost which best remains on the skin surface. The addition of boric or benzoic acid, with or without cornstarch, represents an advance over the base emollients only. Protective ointments are discussed in a publication by Schwartz in *Medical Clinics of North America*, July 1942, page 1195. Various types of ointments are discussed together with a listing of the better known commercial preparations. In addition to the possible need for a protective ointment for these lime workers, either made up locally or obtained from commercial sources, it is desirable that the workers maintain a high order of personal cleanliness, particularly when away from work duties. Lime dusted clothing should not be worn apart from work. All lime should be removed from the skin at the end of the work period and, if practical, one or more times during the work period. The application of a bland ointment to exposed areas at the end of the work period, after proper cleansing, may be beneficial. In addition to the present personal protective devices mentioned in the query it may be necessary to wear petrolatum coated cotton plugs in the ears to prevent aural dermatitis. Should any lime dermatitis appear, further contact with lime should be excluded for the time being pending healing. This may not necessitate absence from work.

DIETHYLSTILBESTROL FOR KRAUROSIS VULVAE

To the Editor:—**Please advise how much powdered diethylstilbestrol should be incorporated in an anhydrous wool fat base for relief of kraurosis vulvae.**

M.D., Massachusetts.

ANSWER.—An effective diethylstilbestrol ointment is one which contains 1 mg. of diethylstilbestrol to 1 Gm. of the wool fat base. This medication should be used for kraurosis vulvae with the greatest caution because of the potentially malignant changes in this lesion.

LEUKORRHEA

To the Editor:—A white woman aged 30, married, has complained of a vaginal discharge for the past two years. The character of the discharge varies. At times it is thick, at other times thin and occasionally it is ropy and blood streaked. Occasionally she menstruates about one day between the eleventh and fourteenth days of her period. The uterus is in good position, freely moveable and without pain. The tubes and ovaries are apparently normal. The cervix is normal in appearance. Smear of the discharge shows many pus cells, some blood cells occasionally and a great deal of mucus. There are a large number gram-negative and gram-positive bacteria. There are no gonococci and no Döderlein bacilli. Wet smears have been repeatedly negative for Trichomonas vaginalis. What is the probable cause of this discharge? What treatment can be used to eradicate it?

M.D., West Virginia.

ANSWER.—The discharge most likely is associated with ovulation. Many women have a mucous or ropy discharge during the middle days between two menstrual flows. Not infrequently the discharge is blood streaked and in some instances there is a bright bloody flow. Most women have discomfort in one or the other iliac fossae during the time of ovulation, and in some instances the pain is severe enough to be mistaken for appendicitis. There is no treatment for the prevention of midinterval pain or the vaginal discharge. If the discharge is troublesome, acid douches using vinegar or lactic acid may prove helpful. If the discharge is not enough to require the use of some form of protection and if it does not soil the clothes, nothing need be done.

IODIDES FOR SYPHILIS IN PRESENCE OF TUBERCULOSIS

To the Editor:—I should like to inquire whether potassium iodide is contraindicated as antisyphilitic therapy for a patient with tuberculosis of the skin. Also if potassium iodide would cause ulceration of a positive tuberculin reaction in a patient with tuberculosis of the skin. Information relative to these questions will be greatly appreciated.

George T. Thornhill Jr., M.D., Baltimore.

ANSWER.—There is no definite evidence to prove that potassium iodide is contraindicated as antisyphilitic treatment for a patient with tuberculosis of the skin or that it would cause ulceration of a tuberculin reaction in a patient with tuberculosis of the skin. It was formerly thought that potassium iodide breaks down fibrous tissue in the vicinity of tuberculous lesions. At one time the iodides were used extensively in the diagnosis of pulmonary tuberculosis; that is, when tubercle bacilli could not be recovered from the sputum large doses of iodides were administered, following which in some cases tubercle bacilli appeared in the sputum. The conclusion was drawn that the iodides broke down the lesions and liberated bacilli. As they serve as expectorants by increasing and liquefying the secretions in the bronchial tree, it seems probable that they resulted only in liberation of mucus and other materials from the region of the lesion in which bacilli could be demonstrated. The fear of the administration of iodides to tuberculous patients has definitely decreased in the last few years. In fact, iodized oil is now frequently introduced into the bronchial tree of patients with pulmonary tuberculosis. There is no evidence that iodides given in the usual dosage have any deleterious effect on tuberculous lesions in any part of the body.

IMMUNIZATION PREPARATIONS AND LOCAL ANESTHESIA

To the Editor:—I should like to know if procaine hydrochloride 1 per cent may be added (a few drops) to immunization preparations, such as for pertussis, in order to allay the pain following the injection. Would this addition not be of great aid to pediatricians if it does not interfere with immunization?

M.D., Illinois.

ANSWER.—Pain at the site of injection of antigens such as pertussis vaccine immunizing is neither immediate nor intense when it is given into the superficial subcutaneous tissue of the upper arms, so that a visible lump and transient red area of the skin result. The 1, 2 and 3 cc. of the now customary 15,000 million per cubic centimeter concentration are injected at three week intervals to minimize local reaction, retard absorption and insure the highest possible immunity response. Intradermal injection would cause a more severe local reaction. Injected intramuscularly, absorption would be quickened, with a more severe systemic (febrile) reaction; because of this the immunity response might be lessened.

Procaine hydrochloride added to the antigen would give no relief because local pain with tenderness occurs, not at the time of injection, but eight to thirty-six hours later. A small amount of acetylsalicylic acid seems helpful. Local treatment, such as wet dressings or external heat, should not be applied.

STANDARDS OF ANESTHETIC PRACTICE

To the Editor:—What regulations should be followed by small hospitals regarding the administration of anesthetics, especially intravenous anesthesia?

M.D., Kansas.

ANSWER.—The Council on Medical Education and Hospitals of the American Medical Association and the College of Surgeons both recommend that an approved hospital staff must include at least one physician who serves as director of anesthetic practice in the institution. In a small institution where several physicians administer the anesthetics but do not confine their work exclusively to anesthesiology, a small committee may act in the capacity of director of the service.

Consultation with the director of the Anesthesia Service at the University of Kansas Hospital at Kansas City, Kan., should prove fruitful in solving a local problem.

References:

Report of Council on Medical Education and Hospitals: Anesthesia Service in Hospitals: Essentials of a Registered Hospital, THE JOURNAL, March 30, 1940, p. 1260.

Hospital Standardization Report: Standards for Anesthesia Service, American College of Surgeons, 1930.

SODIUM CHLORIDE OR UREA "FROST" ON SKIN

To the Editor:—In severe cases of uremia a crystalline deposit sometimes occurs on the skin. I thought that it was urea or "urea frost." A few days ago a colleague of mine informed me that it was sodium chloride and not urea. I shall be grateful for this information.

M.D., New York.

ANSWER.—The salt content of sweat may lead to crystalline deposits or "frost" on the skin. However, a true "urea frost" does at times develop in severe cases of uremia, especially in cases in which diaphoretic measures have been employed. To differentiate between sodium chloride and urea crystals, some of the deposit should be scraped off and treated on a glass slide with a few drops of diluted nitric acid. Crystals of urea nitrate will be seen after evaporation of the liquid. For further tests, consult a standard textbook on biochemistry.

SUBPERICHONDRIAL INJECTION OF ANESTHETIC SOLUTION

To the Editor:—Is there any danger of a severe reaction from the use of epinephrine hydrochloride solution 1:1,000, one drop to the drachm, in a 1 per cent procaine hydrochloride solution, injection of a drachm or two of the epinephrine procaine solution under the perichondrium preliminary to a submucous resection?

J. F. Martin, M.D., Dunn, N. C.

ANSWER.—Solutions of the strength mentioned have been injected under the perichondrium preliminary to a submucous resection with no untoward reactions.

If the medical condition of the patient to stand a submucous resection is unquestioned and indications warrant this operation, the injection of this solution may be undertaken with relative impunity.

URINARY FREQUENCY AND PSYCHOTHERAPY

To the Editor:—It is discouraging to read the answer to the Ohio physician who inquired about refractory urinary frequency in a young girl (The Journal, Sept. 5, 1942, p. 87). So many people have belabored the use of the terms "organic" versus "functional" that I will pass this by lightly, and note that all disease is organic and functional. The advice that "it is desirable to exclude organic disease before concluding that the symptoms are of functional nature" belongs in treatises on the history of medicine rather than in a modern medical journal. This statement is rather like saying that one must rule out all other disease before concluding that the symptoms are those of carcinoma. The symptoms of psychogenic disease are as obvious as the symptoms of other disease, if one would but take the trouble to look for them. Psychogenic disorders are better diagnosed directly, not indirectly, and treated in their incipience. This simple rule holds for much of medicine. To expect a good result from psychotherapy after the genitourinary manipulation suggested in this case is unwarranted optimism. After considering lengthy bladder and urethral maneuvers it is concluded that "if the urologic investigation reveals no abnormalities, the urinary frequency must be considered as functional in nature. . . ." Further advice is unhesitatingly prescribed for a presumed active, psychogenic disorder as follows: ". . . and treated by means of rest, recreation, suitable hobbies and mild sedatives." Having meandered ataxically toward a diagnosis, there would seem to be no doubt about the method of psychotherapeusis. Who in this day puts his faith in therapy of the sedative type for an intelligent young woman? Obviously the ideal method for a 16 year old honor student with psychogenic disorder would be to have her seen by an expert psychiatrist. Failing this, the practitioner should take the time to talk to the patient and particularly to listen to her story, which may be long and seemingly lead far afield. As in all disease, he should attempt to find the cause of the symptoms. This is hardly the place for a discussion of this procedure. The reader is recommended to Levine: Psychotherapy in Medical Practice (New York, Macmillan Company, 1942) in the absence of competent psychiatric help.

Charles D. Aring, M.D., Cincinnati.